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Table of Contents

	PAGE
ANNUAL CONFERENCE IN NEW YORK.....	66
CURRENT STATUS OF RETROLENTAL FIBROPLASIA	
Jonathan T. Lanman, M.D.....	68
PSYCHOANALYTIC CONSIDERATIONS FOR PROFESSIONAL WORKERS IN PREVENTION OF BLINDNESS	
H. Robert Blank, M.D.....	72
OBSERVATIONS OF EUROPEAN AND AMERICAN OPHTHALMOLOGY	
John H. King, Jr., Colonel, M.C.....	82
AIDS FOR CHILDREN WITH SUBNORMAL VISION	
Howard F. Haines, D.O.S., and Sue R. Haines, M.A. ED.....	90
IMPORTANCE OF MEDICAL-SAFETY TEAMWORK	
L. C. Hatch, M.D.....	96
SUNGLASSES	
H. W. Rose, M.D.....	100
NOTES AND COMMENT.....	102
UNICEF SPEEDS ANTI-TRACHOMA DRIVES.....	105
AROUND THE WORLD.....	106
CURRENT ARTICLES.....	110
BOOKS AND PAMPHLETS.....	124

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ANNUAL CONFERENCE IN NEW YORK

Delegates to the National Society's 1955 three-day meeting are heartened by progress in many areas, challenged by new problems as blindness shifts its attack.

BLINDNESS can be fought successfully. Reports presented at the 1955 Conference, held at the Hotel Statler in New York, March 16-18, gave conclusive proof that thousands . . . hundreds of thousands . . . of human beings are being saved from lifetimes of lost vision, and each one represents a victory of important proportions. Human ingenuity, dedication and generosity are the winning factors.

Eye specialists, nurses, educators, professional workers in blindness prevention, social workers, volunteers and representatives of health agencies from many parts of the country participated in the three-day conference. Discussions centered on six major areas: the community attack on blindness; advances in industrial vision conservation; progress in education of the partially seeing child; opportunities for nurses to conserve the sight of the whole family; psychoanalytical considerations for professional workers in blindness prevention; progress in research; and methods of communicating eye health facts to the public.

Volunteers Enlist

Welcoming the delegates at the opening session Mason H. Bigelow, NSPB president, congratulated them on the gains of the past year. He said that more than 900 volunteers—more than ever before—are today aiding the work of the National Society on both

national and local levels. A total of 684 volunteers are members of the 10 state committees. Vision screening programs in six states are being carried out by another 153 volunteers.

Despite the success of many sight-saving efforts, Mr. Bigelow said, we must face squarely the fact that during 1954 more Americans became blind than during any other year of our history. Increasing numbers of men and women are reaching the fifties, sixties and seventies, where serious eye troubles are more frequent. The increasing life span is certainly desirable, yet with it we find that the problems of eye diseases such as glaucoma, cataract and diabetic blindness are more urgent than ever. Of 70 million who have impaired vision nearly two million have severe handicaps. The cost of this lost vision is staggering in terms of dollars, family adjustment and above all in the enjoyment of life.

Productive Research

"The recent gains against the disease that blinds premature babies—retrolental fibroplasia—show science at its productive best," said Mr. Bigelow. "But there can be no halt in the march of science. There remain many tasks to be accomplished. Perhaps the most urgent problem for us is that of giving scientists the support—one might say the raw materials—they need in order to develop new weapons against blindness."



The newly chartered Connecticut Chapter of the National Society for the Prevention of Blindness held its first annual meeting in New Haven, May 2. Above, from left, are Dr. Eugene M. Blake, chapter vice-president and medical director; Finis Engleman, commissioner of education; Mrs. Arthur L. Ransohoff, secretary; William G. Cleaver, treasurer; Ellis C. Maxcy, vice-president; Stanley F. Withe, president. Presentation of the charter making Connecticut the first state to become an NSPB chapter was a highlight of the National Society's 1955

Conference held at the Hotel Statler, New York, March 16-18.

Important papers given at the conference appear in this issue; for example, one of the meeting's highlights, the report by Dr. Jonathan T. Lanman on the association of oxygen toxicity with retrolental fibroplasia. Other papers will be published in succeeding issues. The National Society is grateful to the many specialists who so generously contributed this material. Also to those who presided at the various sessions: Dr. Ira V. Hiscock, Dr. Hedwig S. Kuhn, Mrs. Dorothy Bryan, Miss Cora L. Shaw, R.N., Dr. John M. McLean, and Mrs. Martha Elliott.

At a luncheon on the final day Martin Weldon, well-known CBS news commentator, ably summarized the conference proceedings and congratulated the delegates on "the tremendous job you have done . . . and are still doing."

"I've learned a great deal from this conference" he said, "and feel more strongly than ever that I and my

family—like millions of other American families—have a direct stake in the objectives you are seeking."

AWARD TO NSPB FILM

"Johnny's New World," the full-color film on care of children's eyes, produced by NSPB on a grant from the New York Community Trust, was awarded the highly coveted Certificate of Recognition of Merit in the 1955 Golden Reel Film Festival of the Film Council of America.

The film, produced by Films for Public Service, Inc., has also received a "very good" rating from the Educational Film Library Association. A 16-minute, 16 mm. sound production, it is priced at \$110. and is available from NSPB at 1790 Broadway, New York 19.

Forty prints of the film have already been purchased by organizations in this country and five foreign agencies have expressed interest in it.

CURRENT STATUS OF RETROLENTAL FIBROPLASIA

JONATHAN T. LANMAN, M.D.

Assistant Professor of Pediatrics
New York University Medical School

It is now generally agreed that oxygen toxicity is responsible for most cases of the disease. The author outlines what has proved to be a safe regimen of oxygen administration.*

RETROLENTAL fibroplasia was first recognized 13 years ago as a disease causing blindness in premature infants. Its incidence rose rapidly until it assumed major national and world-wide importance; there are now an estimated 6,000 children blind from this disease in the United States. In the past few years sufficient knowledge has accumulated to give a fair understanding of the pathological physiology of the disease and to generate the hope that it can be either virtually or entirely eliminated.

RLF affects the blood vessels of the retina. Two to eight weeks after birth these vessels dilate and become tortuous. Later hemorrhages and edema appear; and the retina, which is attached to the choroid only at the ora serrata and the optic nerve head, becomes separated. It ultimately shrinks due to scarring and comes to lie behind the lens as a grey membrane. At this

stage the retina is entirely destroyed and no regression is possible. The earlier, vascular stage lesions frequently regress, and retinal detachment and scarring sometimes involve only a part of the retina.

Oxygen Therapy Studies

Oxygen therapy has been shown to be associated with this disease. Mary Crosse of England and Campbell of Australia found in uncontrolled studies that RLF disappeared when oxygen therapy was restricted, but a few conflicting observations, the erratic, spontaneous course of the disease, and numerous earlier false hopes made for skepticism until controlled studies confirmed these results. Three such studies are now available, with a unanimous verdict incriminating oxygen therapy, and this view is now generally accepted.

However, several questions remain unanswered. For example, in past years 22 per cent of the infants in our premature nursery developed cicatricial RLF but the remaining 78 per cent who received the same treatment did not. As in most diseases, it appears that the etiologic agent can act only on a susceptible subject. Our first sug-

*From the Children's Medical Service, Bellevue Hospital, and the Department of Pediatrics, New York University College of Medicine. Supported by a grant from The E. Matilda Ziegler Foundation for the Blind, Inc. through the National Society for the Prevention of Blindness. Presented at the Annual Conference of the National Society, New York, March 17, 1955.

gestion as to what the susceptibility factor was lay in an observation of Dr. Loren P. Guy, the ophthalmologist with whom we are working. He found that among premature infants examined within the first week of life there was a group with abnormal eyes; the vitreous was hazy and the eyes myopic. These changes regressed and the eyes became normal, usually within a week or two. However, all cases of RLF which ultimately appeared occurred in this group with the early abnormal findings. We did not know whether Dr. Guy was describing an earlier, previously unrecognized stage of RLF or whether he was defining some congenital abnormality or immaturity of the eye that was a prerequisite for the appearance of RLF.

Delayed Appearance of RLF in Smaller Infants

At about the same time, investigators at Columbia observed that the disease appeared later postnatally in the smaller infants. On examining our own data, we found that they fitted into this finding. It was confusing that the disease should take longer to appear in the smaller infants, which is the group most likely to develop it.

Shortly after these observations were made, oxygen was incriminated in clinical studies. By an apparent coincidence, another line of investigation converged with the clinical observations and suggested explanations for questions which the clinical studies had left unanswered. Michaelson in England had been studying the development of the retinal circulation in various animals, and had devoted particular attention to the kitten. He showed that the blood supply to the choroid developed very early in fetal

life, but that the vessels to the retina appeared later and continued to develop after birth. Moreover, they did not appear by coalescence and differentiation of a diffuse capillary network such as is usually thought to occur elsewhere in the body, but by an outgrowth from the hyaloid artery of paired vessels, undistinguishable from each other at first, but ultimately developing into a vein and an artery. The capillary bed then developed exclusively as an outgrowth of the vein, and gradually spread to cover the retina except that it never approached closer than a certain minimal distance from the nearest artery.

A rather sharply defined peri-arterial capillary-free zone is left in the mature eye. This zone is bridged at infrequent intervals by short vessels derived from the artery, its sole contribution to the capillary net. This developmental pattern suggested that something derived from arterial blood inhibited the development of capillaries near the arteries and, though Michaelson did not say what this substance might be, oxygen obviously was a possibility. Shortly thereafter, Ashton and co-workers showed that oxygen administered to newborn kittens caused obliteration of the developing vessels with only a few minutes of exposure. For a time these obliterated vessels would reopen if oxygen were discontinued, but after longer periods of exposure the damage was permanent, and then further normal development became impossible. The eye of the newborn kitten is at about the same developmental stage as that of a small premature infant.

Next in the sequence comes the finding of Mary Fletcher who described in the eyes of some newborn

premature infants certain abnormalities including the vitreous haze and myopia which Dr. Guy had described. In addition she noted that the retinal vasculature of these eyes did not cover the entire retina but was distributed mainly along a vertical axis, leaving the lateral portions of the retina free of visible vessels. She believed this picture represented an immature retina, and found that the percentage of infants having such a retina at birth diminishes with increasing birth weight. At 1,000 grams most infants at birth had an immature retina, whereas at 2,000 grams almost none was found. Several observations on infants with immature retinæ revealed that maturation did not progress gradually and uniformly, but that, after a latent period with relatively little change, the vascular development rather suddenly progressed and the retina rapidly matured. The length of the preceding latent period in general was longer in the smaller infants.

Conclusions Drawn

It now seems possible to construct a rather complete history of the disease. A certain fraction of infants are born with a retina that has an incompletely developed blood supply. These vessels proliferate after birth, but not at a uniform rate. They grow rapidly at a certain developmental stage, generally occurring later after birth in small infants than in larger ones. The growing vessels can be injured by high oxygen concentrations and are particularly susceptible during their period of rapid growth. If sufficient damage is done, the retina is partially or wholly destroyed. The chemical basis for oxygen toxicity remains unknown, though considerable work along

these lines is in progress. Damage to enzymes containing -SH groups appears likely.

It is obviously important to know whether proper control of oxygen therapy will entirely eliminate or merely reduce the incidence of RLF. Other agents may be capable of damaging the developing retinal vessels. In experimental embryology there are many examples of diverse agents producing identical anomalies.

Problem of Oxygen Restriction

In RLF the concept appears to be gaining ground that when oxygen toxicity is eliminated, an irreducible minimum of RLF due to other at present unexplained causes will remain. This may ultimately prove correct, but I believe this concept at our present stage of knowledge is both unwarranted and dangerous. It is generally agreed that oxygen is responsible for most cases. However, it is very difficult to induce either nurses or doctors to severely restrict oxygen in premature infants because they are so firmly convinced that it is beneficial in combatting respiratory distress. This feeling has grown despite the fact that there is as yet no evidence indicating that oxygen will lower mortality rates in premature infants, and a fair amount of evidence that it will not. The concept of an irreducible minimum of RLF offers an excuse for the occasional case of blindness that may occur in the unit which uses oxygen in a manner which they may regard as sparing. But I believe that RLF appearing in an infant who has received any added oxygen at all must be attributed to oxygen toxicity until proved otherwise. In our own unit in the last two-and-a-half years we have accumu-

lated 81 babies with birth weight of less than 1,850 grams, admitted in the first 48 hours of life and followed for at least three months, who have been given what we regard as severely restricted oxygen therapy. None has developed irreversible RLF, though four have had minimal vascular stage lesions which regressed to normal. This contrasts with an incidence of 22 per cent in a corresponding group given large amounts of oxygen. If our own series were indefinitely extended, statistical tables show that we should expect an incidence somewhere between zero and 4.5 per cent. Even this upper confidence limit of 4.5 per cent is already below what some have estimated as the "irreducible minimum" of RLF. While we are pleased with our results, a case of RLF appearing under our present low oxygen regimen would immediately lead us to even more stringent restriction. We feel no sympathy with this concept of the irreducible minimum and believe that if it becomes widespread it is capable of doing great harm.

Safe Regimen

Thus far in our experience the following has proved to be a safe regimen of oxygen administration:

No added oxygen is given any infant, however small, until cyanosis appears. A cyanotic infant may receive oxygen at concentrations below 40 per cent, but for no longer than necessary; often only a few minutes suffices. Every eight hours at the time of the nursing shifts all oxygen is shut off and the nurse in charge of the new shift may begin therapy only if cyanosis appears. Concentrations are measured at least every eight hours, even though all our oxygen is derived from tanks

containing 40 per cent oxygen-60 per cent nitrogen. No 100 per cent oxygen is allowed in the premature nursery. All vaporizers are operated with compressed air. We feel that a premature unit not prepared to give close attention to oxygen therapy, including frequent measurements of concentration, should discontinue its use altogether, since benefits are unproved and toxicity unquestioned.

WINIFRED HATHAWAY MEMORIAL FUND

At the request of her many friends and associates in the field of education a Winifred Hathaway Memorial Fund has been established by the National Society for the Prevention of Blindness. This fund will be devoted to extending that part of the Society's work which concerns the education and health of partially seeing children. Contributions designated for the fund may be sent in care of the National Society, 1790 Broadway, New York 19, N. Y.

Mrs. Hathaway joined the National Society in 1916 and for 24 years was its associate director. She initiated its campaign of professional education, working particularly on the promotion of special educational facilities for partially seeing children. Shortly before her death last December she completed a revision of "Education and Health of the Partially Seeing Child," the standard textbook used throughout the world.

NEXT YEAR'S NSPB CONFERENCE

March 26-27-28, 1956

**Palmer House
Chicago, Illinois**

Psychoanalytic Considerations for Professional Workers in the Prevention of Blindness

H. ROBERT BLANK, M.D.

Contributing Editor, *The Psychoanalytic Quarterly*

Psychological tension or emotional disturbance may block successful recovery or adjustment of the patient with visual impairment. While there is no evidence that eye disorders inevitably produce major personality problems it is unwise to focus narrowly and mechanically on ophthalmologic needs.*

WHAT psychological factors sabotage the successful treatment of eye disorders and the prevention of blindness? We begin by stressing the obvious: psychological reactions occur in a human being who has a body as well as a personality, who lives in a complex interpersonal environment, with many socio-economic and other cultural forces impinging on him via this environment and less direct channels. All of these forces have profound influence on his mental and physical development, his reactions to illness and life stresses in general, and on what we can or cannot do professionally. If we ignore this context, we will grievously distort what will be presented from the psychoanalytic viewpoint.

To cite an aspect of the over-all problem: in an under-privileged area where basic housing, educational and medical facilities are primitive (or inaccessible because of class or racial discrimination) it is extremely unlikely that professionally trained and psychoanalytically oriented workers will

be available to help people with their intrapsychic difficulties. Or, in the case of a disorganized family with demoralized parents, the professional worker can hardly begin helping the partially blind child overcome his resistance to ophthalmological treatment by focusing on the child's unconscious conflicts. Here the total family situation has to be studied carefully so that professional help can be provided most effectively. In a recent situation of this sort residential psychiatric treatment of the child enabled him to take the previously rejected medical treatment.

Then we have the following typical situation even where "medical care" is adequate: a child with an eye disorder, possibly due to an injury about which he already has considerable anxiety and guilt, has to wait several hours in a crowded, poorly ventilated clinic waiting room, seeing all kinds of suffering and mutilated adults as well as children, before he sees his doctor. Do we here have to psychologize in order to explain his resistance to treatment, especially if it involves repeated clinic visits and surgery, or do we ask ourselves what we are doing to provide attractive hospital waiting rooms with

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, New York, March 17, 1955.

specially designed ones for children?

There exists a more circumscribed professional context basic to our approach, namely that there is no distinctive set of psychic reactions characteristic of the visually handicapped. We need no special "psychology of the blind" in order to understand the emotional problems of the blind or those who feel threatened by blindness.

There is no evidence that impaired vision or disease of the eye inevitably produces distinctive major personality problems or ego defects.* The developmental behavioral and emotional problems presented by the visually handicapped have essentially the same etiology as similar problems among the physically healthy or those suffering from other physical handicaps. Excluding the unusual organic and constitutional, these etiologic factors may be thus classified:

1. Disturbed parent-child relationships in infancy and childhood.
2. Psychologically traumatic experiences in later life.
3. The failure of society adequately to provide the indicated economic, medical, educational and other professional services to the child or adult needing them. This failure of society is rooted in a complex of historical, cultural, and psychological determinants.

The generic approach presented in no way contradicts the quantitative consideration that certain personality problems might be more frequently encountered, or occur in severer forms,

* We are excluding here the *temporary* "shock" reactions and depressions following acquired blindness which, per se, cannot be regarded as pathological. If these symptoms persist, we are dealing with a more serious condition.

among people with impaired vision than among those suffering from other handicaps. In fact, the sounder our basic background in our respective disciplines and the more thorough our generic knowledge of psychology, particularly the knowledge of unconscious psychic functioning, the better prepared will we be to discern what is specific in a given field such as the prevention of blindness.

Great concern over visual impairment and the possibility of blindness is realistic for obvious reasons, chiefly the economic threat and the disrupting effect of visual impairment on patterns of daily living and social life. In fact, a patient showing no concern over a visual difficulty with an uncertain prognosis should arouse our suspicion that he harbors a serious personality problem or mental illness in latent form. However, the essentially healthy personality, in spite of great concern, will not become disorganized or behave in a helpless fashion, will cooperate with medical treatment, and will retain hope for recovery or preservation of vision in keeping with the prognosis, assuming of course that his ophthalmological problem has been clearly interpreted to him and that he is receiving the indicated help for the real problems in living caused by his disability.

We can safely assume that the patient who "goes to pieces," cooperates poorly with good treatment, or actually sabotages treatment, "because" of his eye condition, has been suffering from a pre-existing personality disorder or so strong a predisposition to such a disorder that it required very little in the way of a precipitating stress to produce it grossly. To the extent that the eyes and vision are specifi-

cally involved in such predisposing unconscious conflict we may outline the etiological factors in psychoanalytic terms as follows:

1. The unconscious significance of the eye as a sexual organ.
2. The unconscious significance of the eye as a hostile aggressive organ.
3. The unconscious significance of blindness as a punishment for sin.

Since these factors are to some degree universally operative because of the importance of vision in psychosexual and ego development, we find in our society widespread irrational, contradictory, and paradoxical attitudes toward the blind, attitudes which are shared by the visually handicapped themselves. As a corollary we may expect that visual impairment or the threat of blindness is likely to evoke more serious emotional repercussions in the average person than comparably severe impairment of other organ functions. This corollary is overdetermined by the very real burdens imposed on the individual by visual impairment which we have previously emphasized.

Transference Reactions and the Mechanism of Displacement

By transference reactions we mean the reactions of the patient to the worker* which are determined by unconscious forces in the patient. By displacement we mean the unconscious transfer of feelings, conflicts, and attitudes from their original object to a

* The term worker in this paper refers to any professional person working with the patient or potential patient, e.g., the medical specialists, case worker, psychologist, and teacher.

safer and more acceptable substitute object. Where hostile feelings and overt aggression are involved, we commonly refer to the substitute object as a scapegoat; for example, the man who suppresses his resentment toward his boss later expresses it against his wife or a subordinate. Many people have repressed conflicts originally related to their parents and other members of their family. These conflicts tend to be evoked when the subject is brought in contact with a person reminiscent of the original persons. Then, whatever is expressed in the way of complaints, feelings, attitudes and demands toward the substitute objects will be unrealistic or disproportionate. Thus we find patients commonly reacting to their doctors as parental, authoritative, father-god figures.

The substitute object need not be a person; it is often an institution or agency which unconsciously has the significance of a mother figure. Moreover, because the patient's visual difficulty and threat of blindness often make him regress psychically to childhood patterns of feeling and thinking, the repressed conflicts vis-a-vis the parents and siblings tend more strongly to be evoked in the often painful threatening and frustrating hospital or agency situation.

Probably the most specific and frequent examples of this process are determined by the real dependency of the visually handicapped patient upon his doctor or institution which mobilizes whatever remains of childhood dependency conflicts, notably the unconscious wish to be taken care of as a baby, the rage against the parent (and siblings) for frustrating this wish, and the reactive guilt for this hostility.

What the untrained worker might see as a patient's irrational or unreasonable demands on him or the hospital might be seen by the worker with insight as the patient's regressively acting out a child-parent or a sibling rivalry scene. The unconscious import of the patient's unreasonableness might be stated as follows, "I am a helpless infant; you have to take care of me. You are big and powerful, and it is your duty as my parent to do so. I want to be your favorite child; you must drop everything and grant my every wish. Don't impose any responsibility on me, not even the responsibility of patience."

The mechanism of displacement is often involved in the motivation for a patient's prolongation of his illness. This is consciously manifested by an exaggerated concern over the physical handicap which represents a displacement from something the patient is unconsciously or consciously really worried about and unable to solve except through evasion. People often feel trapped in a real, painful, acutely frustrating life situation. Such people frequently welcome the disability and dependence of a chronic illness with or without overt conflict. "Hospitalitis" is a frequent and often misunderstood condition. For many people the first real affection, respect, and regard for their rights as human beings is received in a hospital. Can we validly expect them actively to cooperate with treatment if cure means returning to a depressing, poverty-stricken, and demoralizing home environment? The importance of case work help with such external realities need hardly be emphasized here.

Since blindness is generally regarded as a socially acceptable reason for

helplessness and dependence, the visually handicapped person, who is for whatever reasons irrationally motivated in the direction of dependence, will therefore be supported in his dependency strivings by widespread social sanction regardless of the degree of his handicap.

The Parent of the Visually Handicapped Child

The request for help by the parent and the complaints of the parent about the child have to be appraised first as an indication of the parent's need and emotional disturbance. The parent's complaints should not be mechanically taken as an indication of the child's specific problems, nor as the measure of the child's personality difficulties. Why is the parent disturbed? What help is he or she really asking for? What help is needed individually and as a family? This is an approach familiar to most of us in mental hygiene clinics, family case work agencies, and counseling services; an approach which is far too easily neglected if the worker himself is confused by the smokescreen of the illness or the threat of blindness presented by the parent as the "cause" of the child's problems or the parent-child conflict.

The eye disorder with visual handicap, just as another child's "low I.Q.," "late talking," "small size," etc., need not be accompanied by inevitable ego defect or serious emotional disturbance. However, the child's illness, by overtaking the parent's resources and by evoking repressed conflicts in the parent, frequently releases parental anxiety, hostility, and guilt reactions. Against these unacceptable feelings, the parent mobilizes his defense mechanisms and

compensatory reactions; notably: over-protectiveness, a marked displacement of anxiety to the child's eye disorder as the cause of the difficulty, and other manifest anxiety displacements. Under these circumstances, the parent-child relationship will be distorted and, what is most germane to our professional problems, there will result interference with treatment of the specific illness and our program of sight preservation for the child. Just as in the case of the adult patient, we must not focus narrowly and mechanically on the ophthalmologic needs.

Case Summaries

Case 1—A 40-year-old woman with a toxic condition of the retina and moderately severe visual impairment was profoundly depressed and pictured herself as inevitably becoming dependent, which she could not tolerate because of her strong ideal of "independence." She refused with considerable feeling to undertake the learning of braille and to cooperate with other elements in the sight-saving program. She was provocatively hostile toward medical and other professional personnel, felt they treated her "like a dog," and she engaged in considerable ophthalmological "shopping." Through eventual expert case work she was able to accept psychotherapy with the psychoanalyst. In this successful treatment the following became apparent: her strong drive toward independence which she had successfully fulfilled by external standards had covered up an intolerable repressed wish to be dependent and cared for like a baby by her mother. However, being dependent and taking from others, realized by the visual disability, carried with it fearful connota-

tions of vulnerability, degradation, and worthlessness. These feelings about herself were projected onto the medical and other professional workers unconsciously, hence her defensiveness and hostility to others who were in a "superior" and "independent" position.

Case 2—A 35-year-old professional woman, blind for five years, with overt attitudes and underlying conflicts almost identical with those of Case 1. Case work helped her give up her state of depressed hating, self-hating, and inactivity; she mastered braille, guide dog technique, etc., and returned to work successfully. When an ophthalmologist suggested the possibility of restoring some vision through surgery—previously regarded as unfeasible—our patient became anxious and revealed that she was afraid, not of surgery, but of returning vision. She said she did not want to disrupt her very productive life with blindness; new burdensome readjustments would have to be made. With little difficulty she was helped to see that she was afraid of losing that special place, the position of favored child, the awe of colleagues and friends. She then cooperated actively with her physicians; utilizable vision in one eye was restored, and her adjustment to the life of the sighted was accomplished with little distress. When she saw her first television show, she commented, "I'd rather be blind than have to look at such trash."

Case 3—A 35-year-old research scientist superficially concerned and cooperative with surgical treatment for a detached retina returned to strenuous sports against advice and re-detached the retina. This was fol-

lowed by a moderate depression. Study revealed that hospitalization gratified his strongly repressed oral cravings. Moreover an anxiety about a recurrent inhibition in his work of which he had been only partially aware was demonstrated to be due to the unconscious sexual significance of vision. Because of severe guilt he could not accept even unconsciously the sexual gratification attending his research. Blindness was unconsciously sought as a punishment, to eliminate the scopophilic conflict, and to gratify the oral cravings. This man was helped greatly by a clinical psychologist who consulted with a psychoanalyst, and the patient not only returned to work but worked more productively than he had prior to his illness.

Case 4—A 10-year-old girl with myopia was uncooperative and emotionally disturbed about wearing glasses. Her mother kept finding fault with one clinic and doctor after another, and, until an astute case worker refused to be provoked by this mother and established a confidential relationship with her, the prognosis appeared hopeless. The problem turned out to be the mother's own conflicts over her narcissism which had led to an over-identification with her daughter and an intolerance for the girl's wearing glasses. That this mother was provoking the daughter's rebelliousness was also confirmed by the highly favorable change in the child's attitude following the airing of the mother's feelings and the development of some insight. This case particularly exemplifies the need to look at the parent-child relationship when the child is sabotaging treatment, and similarly, the need to look at the psychologically influential rela-

tives in the case of an adult who is uncooperative.

These four cases contain several things in common which deserve special emphasis:

1. Initially they offered poor prognosis because the problems appeared too ingrained and minimal insight seemed lacking.
2. In each case it was obvious that the ophthalmological treatment was doomed to failure unless the sabotaging emotional problems were resolved.
3. Not only was case work and psychotherapy successful but the treatment was non-intensive and unusually brief. This is not to be misconstrued as my favoring brief and nonintensive treatment. While the problems exemplified are typical, the results of therapy are presented only as demonstrations of what is possible when we offer the patient a truly professional and multidisciplinary approach.

Countertransference Problems

Psychoanalysis has taught us that in considering the professional helping process, be it psychoanalysis proper, case work, or counseling, it is just as important for the worker to know as much as he can about his own character, prejudices, and unconscious tendencies as the patient's. By countertransference reactions we mean those reactions of the worker to the patient which are determined by unconscious forces in the worker, and which, if unrecognized will interfere with his professional functioning. This puts a special premium on increasing self-knowledge in the education, training, and supervision of the worker.

Probably the most common cause of countertransference problems in work with the physically handicapped is an unconscious over-identification with the patient as "crippled," "defective" or "castrated." This might manifest itself in several ways. The worker might feel disturbed, anxious, and unable to focus adequately on the client's problems. The worker's anxiety might be evoked only when he has to say no to the patient, when he has to impose some limitation which is unconsciously sensed by the worker as a hostile act against the client (and against himself by identification). The unconscious meaning of this countertransference reaction can be expressed: "The patient (and I) deserve everything we ask for, we should be protected against any frustrations because we are helpless and crippled." On the other hand, the over-identification might prove intolerable for the worker, especially if a strong masochistic element is present. In this case, the worker is apt to harbor hostile rejecting attitudes toward the patient: "I have nothing in common with you, I have no sympathy (identification) for you." We are most angered by those traits in others which we find intolerable in ourselves.

Most of us in our training have to overcome countertransference problems relating to excessive need for approval, a need to be the omnipotent benevolent rescuer, or to play God. The worker with this type of problem unresolved will tend to prolong the client's dependence on him as long as the worker's unconscious need is gratified. He will become distressed and angry, and tend to terminate the relationship if the patient asserts himself and doesn't "behave." The more

insecure the worker in his personal or professional status, the more will he tend to over-react to any implication of dissatisfaction, anger, or lack of progress in the patient.

A word of caution is essential lest these brief remarks on countertransference be misunderstood. Not every emotional reaction to the patient is a countertransference. Not every countertransference reaction indicates a serious problem in the worker. Countertransference problems do not indicate the need for psychoanalysis or change of job unless they produce repeated difficulties and render the worker's performance unsatisfactory. An experienced supervisor often helps a less experienced worker overcome a countertransference problem by making the worker aware of it and how it interferes with his work. Moreover, since no one is completely free of unconscious conflict, countertransferences will occur in every worker. The more mature the worker and the more insight he possesses into his own assets and liabilities, the less frequent and severe will be his countertransference difficulties on the job as well as his interpersonal difficulties in general.

Accident Proneness and Traumatic Blindness

The psychogenic determination of traumatic blindness is too specialized a field of study for us to do more here than outline the different types of psychological problems involved:

1. Psychological accident proneness (as differentiated from that due to neurological and other physical causes) is often interpreted as the specific acting-out of an unconscious self-punitive or unconscious suicidal wish. We

have a good example of this in Case III above. While in absolute number these cases are impressive, I believe that this cause of accident proneness is relatively unusual per se.

2. Accident proneness due to impaired attention to danger because of preoccupation with one's emotional conflicts. The attention, as it were, is diverted from the real external danger toward the inner fantastic dangers.
3. Accident proneness due to impaired neuromuscular coordination produced by inhibitions or disorganization of motility. This might occur as a result of the individual struggling to control hostile destructive impulses.
4. Accident proneness due to impaired reality testing and the denial of reality as seen in psychotics and "psychopathic personalities" who have a strong unconsciously determined capacity to deny external danger or any limitation to their motility. These people usually manifest their problems in gross symptoms and disturbed work and social relationships. However, their getting into a serious accident might provide the first opportunity for diagnosis and treatment.
5. Accident proneness due to alcoholism and all its underlying problems. It is my impression that alcoholics are responsible for more traumatic damage, including blindness, to others than to themselves. It is obvious that here, as well as in other items we have discussed, we are dealing with vast social and medical

problems transcending in importance the issues of prevention of blindness and accidents.

6. Any combination of the above factors.

Psychogenic Eye Disorders

Hysterical visual difficulties, such as tubular vision and blindness, represent specific symbolic expressions of unconscious conflict without structural change in the tissues of the eye. The diagnosis can be made with relative ease by the ophthalmologist and complete restoration of vision is possible with psychotherapy. The diagnostic and therapeutic problems, however, are greatly increased when a hysterical condition becomes superimposed on structural pathology. Here recognition and treatment of the hysterical component are essential to prevent complete disability; this requires the closest collaboration between the ophthalmologist and psychiatrist.

An even more complex group of disorders are encompassed by the term psychosomatic. These are structural diseases caused by a combination of physical and indirectly operating psychogenic factors. Prolonged emotional stress is probably the most significant of the latter. The subject however is still widely debated in medical and psychoanalytic circles. For example, the connections are still obscure among constitutional predisposition, character predisposition, specific conscious and unconscious conflict, and specific physical causes like infection. We are on scientifically valid ground in assuming a psychosomatic etiology in the degenerative cardiovascular and metabolic (diabetes) conditions which frequently result in severe

visual and auditory impairment in those over fifty years of age. We are again plainly dealing with problems of vastly wider scope than the prevention of blindness. And we most appropriately conclude the paper with this reminder, that prevention of blindness is part of the overall goal of disease prevention and health improvement for all the people.

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Dr. Blank's article also appears in the July issue of SOCIAL CASEWORK, published by the Family Service Association of America.

SURVEY REVEALS NEGLECT

Widespread failure by parents to correct medical defects found in their children by school examinations is reported by the Health Information Foundation. A recent study carried out in 20 Pennsylvania communities tried to determine methods for improving this situation.

Over the nation as a whole, the Foundation reported, an extremely high proportion of impairments discovered by the school physician are not corrected. In one state doctors found 37,000 children with eye troubles,

and months later only 8,000 of them had received the needed remedial care. A survey made for Pennsylvania in 1950 showed that only 48 per cent of the health problems reported had been corrected. This lack of follow-through is believed to be general in schools.

The survey financed by the Foundation was made in 1952 and 1953 by the Social Science Research Center of Pennsylvania State University. A group of 1,703 boys and girls ranging in age from seven to fifteen was studied; defective vision and bad tonsils were by far the most frequent disabilities. One child out of ten had vision defects.

In five communities the researchers made no effort to stimulate parental cooperation but left the normal procedures untouched. This was the control group. In the fifteen other schools studied, three different campaigns for enlisting family cooperation were set in motion. In the control group which was left alone only 45.6 per cent of the defects were corrected, while in the others a 60.7 per cent follow-through by the parents resulted.

As might be expected, the survey indicated that the families most in need of understanding the importance of carrying out the recommendations of the school physician belonged to the smaller rural communities and the lower income groups.

The problem was considered a complex one in which the school nurse and physician, the parents, and the family doctor all needed to work more closely together. It was found by the survey workers that public relations campaigns had less effect in influencing parental cooperation than good methods of record keeping by the schools and personal contacts by the nurses.

OBSERVATIONS OF EUROPEAN AND AMERICAN OPHTHALMOLOGY

JOHN H. KING, JR.

Colonel, M. C.*

The European clinics, says the author, deserve a visit from every American ophthalmologist who is proud of his specialty and who is interested in its history and tradition.**

DURING the summer of 1954 I toured U. S. Army hospitals in Europe as consultant in ophthalmology for the Surgeon General. At the same time brief visits were made to some of the larger civilian medical centers. This paper recounts my observations of certain aspects of ophthalmology and makes occasional comparisons of technics and research noted in Europe with that of similar work in the United States.

U. S. Army Hospitals

In Germany most of our Army of Occupation hospitals are housed in permanent buildings, several newly built, while others occupy former German civilian or military hospitals. The facilities are excellent and the eye sections are quite adequate in most instances. The standard American equipment is supplemented by excellent German optical instruments, purchased with the reparation Deutsche Mark.

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** Presented at the meeting of the New York Society for Clinical Ophthalmology, November 1, 1954.

Salzburg, Austria, has the main Army hospital for that country, and it is second to none for its size. There is a small efficient dispensary in Vienna. Our hospitals in France have not fared as well as those elsewhere as far as physical facilities are concerned.

Many of the 17 Army hospitals visited have well-trained ophthalmologists who are performing superiorly. The eye care and instrumentation in our Army hospitals in Europe do not differ from those in this country.

The caliber of civilian ophthalmology in Germany seems to be steadily improving after the devastation of war. Although clinics are being remodeled and rebuilt, there is still much to be done.

Vision Testing

In Professor H. J. M. Weve's clinic in Utrecht, Holland, and in Professor H. Goldmann's clinic in Bern, Switzerland, a *malingerer device* for visual acuity is employed which appears to be of value. It consists of a checkered grid, mounted on rollers, and enclosed within an illuminated black box. The grid is moved back and forth by means of a motor. The patient is asked to view the lighted space while the oculist

"examines" his eyes. The examiner fixes on a retinal (or scleral) blood vessel and notes the appearance of minimal nystagmoid movements of the patient's eyes as he involuntarily follows the motion of the lighted grid. The distance from the target at which the ocular motion first occurs is noted and the visual acuity is read from a chart which has computed the distance and the visual angle subtended by the marks on the grid.

B. H. Schwarting, a resident in our clinic, has developed a *visual testing device* which can be used for very young children. It is a metronome with wands of different widths which swing back and forth in a lighted box. The child's attention is attracted to the light and the noise, and his visual acuity is determined by motion of the eyes which follow the movement of the proper sized calibrated wand.

Orthoptics

Several foreign clinics appeared to give orthoptics an importance which is not seen in this country. Others displayed little enthusiasm. In Eye Clinic No. 1 in Vienna, an elaborate clinic is functioning with several women ophthalmologists acting as technicians. The usual orthoptic equipment is supplemented by numerous other devices. Electronic drawing boards, movies of changing sizes, bar reading at varying distances, and depth perception training instruments were in use.

A British woman technician was employed in the large orthoptic clinic at the University of Rome. Professor G. B. Bietti's clinic at the University of Parma, in northern Italy, also displayed much interest in orthoptics. Oxygen is administered to children while they are receiving orthoptic

treatment. It is felt that this improves the nourishment of the retina and brain and enhances fusional amplitudes. It is said to reduce areas of suppression and scotomata in amblyopia, to allow rapid response in amblyopia, and to eliminate cross-fixation. It reduces fatigue of convergence and accommodation. Bietti feels that oxygen is an aid in diagnosis in squint by "showing whether or not it is possible to increase small degrees of fusion in adduction up to a security limit. Such fusion would indicate that there is real fusion, and not simple superposition." Improvement noted is temporary but is said to result in gradual and more rapid permanent improvement than occurs without oxygen. On the other hand, with a reduced oxygen supply one may discover a severe impairment of seemingly normal muscle balance. I shall mention more about the use of oxygen later. Little enthusiasm was evidenced for orthoptics in some clinics in Switzerland and Holland.

Ocular Diseases

In West Berlin, at the Free University, focalized ultraviolet light rays are used to treat recalcitrant corneal ulceration. Combined chlorophyll and cortisone ointment is used in Parma, Italy, to treat certain corneal conditions. It is felt that the delayed healing effect of cortisone is neutralized by the rapid healing properties of chlorophyll. There is very little acute active trachoma in any Mediterranean country today. This improvement has been attributed to better hygiene and to the use of sulfa drugs and antibiotics. Bietti, in treating trachoma, employs a new penicillin-B, intramuscularly, (Bicillin) which acts for several weeks or longer.

Ocular *toxoplasmosis* is freely diagnosed in Europe. Undoubtedly it is a prevalent disease; however, the diagnosis was presumptive in many instances. I am sure you are familiar with the case report last year of a patient at Walter Reed Army Hospital from whose enucleated eye *toxoplasma gondii* was cultured.

The *sterility of solutions* and asepsis of technics was questionable in some clinics I visited. The ancient and outmoded undine was in evidence everywhere. Dionine is still copiously dispensed. Epidemic keratoconjunctivitis is not uncommon and special treatment rooms are allocated to its care. In the United States our ophthalmologists and drug manufacturers are now alert to the contamination of eye medicaments. Sterility of manufacture is demanded for solutions and is forthcoming for ointments. One company* now has a sterile one dose tube of eye ointment preparations. A sterile disposable dropper with enough solution for several applications** is excellent for use in the operating room. In the clinic we prefer plastic one-use disposable droppers,*** sterilized at the manufacturer's by ethylene oxide gas. These prevent the contamination of sterile solutions, the most dangerous of which is fluorescein. Other companies offer sterile solutions in plastic and glass containers from which a drop is squeezed out.****, ***** These are

of value for prescribing to outpatients, but I question their use in the clinic. Plastic containers are also in use abroad, especially in Italy, for dispensing solutions of antibiotics and other medications.

Macula Disease

Professor Marc Amsler's clinic in Zurich, Switzerland, is modern and superior by any standards. His interests are diversified, and I shall mention only disease of the macula at this time. He feels that too much attention is paid to quantitative visual function to the neglect of qualitative visual acuity. The Amsler grid is designed to detect early macular changes with the knowledge that a functional disturbance precedes an obvious organic lesion and that a functional disturbance may be reversible, whereas an organic lesion is usually permanent. The functional change is a more sensitive guide to the course of a maculopathy than is provided by the ophthalmoscope. This simple and efficient method consists of a square black card with a white fixation point in its center. Each side of the square card measures 10 cm. and it is divided into smaller squares by parallel vertical and horizontal white lines 5 mm. apart. The appearance is that of a perfectly regular grid. The card is presented to each eye separately at the reading distance of 28 to 30 cm., where each small 5 mm. square subtends an angle of 1 degree, and the entire grid 20 degrees.

While viewing the fixation point on the grid the patient is asked certain questions designed to elicit the presence of metamorphopsia and of relative scotoma. These questions will bring out the presence of scotomata of various types—metamorphopsia (mi-

* Unidose, Schering Corp., Bloomfield, N. J.

** Steridrop, Ophthalmos, Inc., Union City, N. J.

*** San-i-drop, Marnel Co., Inc., Alexandria, Va.

**** Drop-tainer, Alcon Lab., Inc., Fort Worth, Texas.

***** Oph., Winthrop-Stearns, Inc., New York 18, N. Y.

ropsia or macropsia—diffuse or local)—or the very earliest signs of macular disease when vibration, colors, etc., are noted. The distance of the lesion from the fovea and the danger of foveolar involvement are important.

In micropsia the horizontal and vertical lines curve inward toward the central point, while in macropsia they bow away from it. Macropsia, with the objects appearing larger than they are, is due to retinal contraction with the retinal elements approximated to each other. In micropsia, the opposite is true. A smaller image results from the stimulation of fewer perceptive elements which are distended and separated, as in edema.

The importance of a test, such as this which diagnoses macular disturbance in its functional stage before an organic change is visible, is obvious. Early treatment may prevent a well-established condition which will not respond to therapy.

This test is not well known or popular in the United States. We now employ it routinely in older people and in those who complain of poor qualitative vision, or in suspected macular lesions. In most instances it is best used when ophthalmoscopic changes in the macula are lacking or are questionable.

Another examination which may be of value in the attempt to diagnose early macular disease is also not new but is apparently not widely used. This is the Haidinger brush test. When polarized light enters the eye a distinctive brush pattern is formed. This phenomenon is said to be due to the polarization power of the macula and specifically Henle's fiber layer which has the faculty of dichroism. M. Goldschmidt, of New York, has developed

an instrument which rotates a polarized disc making the brushes turn like a propeller. Patients with macular defects cannot observe Haidinger's brushes, and this may precede ophthalmoscopic evidence of disease. Dr. Louise Sloan at Johns Hopkins is investigating the phenomenon and states that the brushes are not distinguishing if visual acuity is 20/100 or less. The central portion of the brushes may be blotted out in the presence of central scotoma and the periphery of the brush rotation can still be noted. She feels that the pattern is formed in the central 3-degree area.

Ocular Surgery

Goldmann, in Bern, employs local anesthesia in young children with no difficulty. Professor A. Franceschetti, in Geneva, uses 20 per cent alcohol in procaine to prolong Van Lint akinesia. Professor H. Stallard, in London, combines 15 per cent alcohol for this purpose. Pressure dressings over the eye following local infiltration are used in several clinics, for about 15 minutes preoperatively, to insure adequate anesthesia. I did not see hyaluronidase or curare employed. Weve, in Utrecht, takes a tonometer reading in the operating room after anesthesia before making the corneal section in cataract surgery. The tension must be in the mid-twenties or lower before the incision is made. Preplaced sutures and keratome-and-scissors sections are not popular. Operations are performed with amazing rapidity according to our standards. Gloves are seldom used, except by an assistant who passes instruments, and face masks are omitted in some clinics while performing muscle surgery.

The surgery of retinal detachment

is meticulous, and the clinics of Professor G. Lo Cascio, in Naples, and Weve, in Holland, seemed to "specialize" in this condition. Lo Cascio had phenomenal success in treating macular holes with diathermy. Weve claims 80 per cent success in his detachments, and most of his patients had been operated upon at least once elsewhere. Reefing and scleral resection, with diathermy, were popular in his clinic and by Hruby in Eye Clinic No. 2 at the University of Vienna. Weve attributes his success to the use of post-operative x-ray therapy to the retina to prevent neovascularization. Professor L. Coppez, in Brussels, has a special thermometer gage attached to the diathermy machine to permit controlled heat. The electrode is applied for a long time with controlled temperature to obtain "cooking rather than charring." In this country research along similar lines for better standardization and control of diathermy in detachment surgery is being done by R. Irvine in Los Angeles.

Bietti, in Parma, makes much use of plastics in ophthalmic surgery. Vinyl cloth is employed in place of fascia lata for ptosis and orbital defects. In patients with occlusion of the nasolacrimal duct, polyethylene tubing is sewed from the bottom of the lacrimal sac to the middle meatus where it remains indefinitely. Tubing is also used in glaucoma surgery from the angle of the anterior chamber to the suprachoroidal space of the ciliary body. In the face of old uveitis, where the ciliary vessels are thought to be sclerosed, the tubing is taken externally to drain subconjunctivally. The Ocular Research Unit at Walter Reed Army Medical Center has had a sim-

ilar type of tubing in monkey eyes for the past 18 months.

You are familiar with Dr. H. Ridley's plastic lens which is placed behind the iris following extracapsular cataract extraction. In London I saw several of his patients who had quiet eyes and 20/20 vision; however, Ridley and others have reported the loss of some eyes from uncontrolled iritis. B. Strampelli and Bietti in Italy use a plastic lens in the *anterior chamber* in front of the iris, which is placed six months following linear extraction for traumatic cataract. Several types of these lenses have been tried. His present one is rectangular, with a slight curve, rounded at the lower end, with two smoothed prongs at its upper end. The refractive error is ground on the small round surface in the center, plus or minus. I witnessed one of these operations and also examined another patient with the slit lamp who had had the lens in for 18 months. This was the oldest case of about 14 such operations performed in Italy. The lens bridges the anterior chamber and does not touch the corneal endothelium or the iris. A discission can be performed, if necessary, without disturbing the lens. Ridley himself admits that the advantages of this lens may outweigh the spherical one in the posterior chamber. I have placed these lenses in six animal eyes (cats and monkeys) to study the effect on the anterior segment.

Technics for the removal of magnetic intra-ocular foreign bodies did not appear as precise as ours. The Berman Locator, an invaluable aid in these cases, was not in evidence.

Amsler performs corneal transplantation by an unusual technic. The anterior chamber is maintained while trephining the host eye by the con-

tinuous injection of fluid through a preplaced Amsler needle. The surgeon fixes the globe by holding this needle while trephining.

The Arruga implant is popular in Europe following enucleation. This is a buried muscle-tunnel type with two pegs which protrude through the covering Tenon's and conjunctiva to allow contact with the prosthesis. I was told by the plastic eye makers in London that these sockets were difficult to fit with a prosthesis and that results were not always too satisfactory. We employ a buried muscle-tunnel implant with the face covered with a stainless steel mesh (modified Allen) which offers excellent mobility of the prosthesis.

Research

Research is active in most of the larger European clinics, and it would be impossible to elaborate upon it at this time. Valuable studies in the basic sciences and clinical subjects are being performed. Laboratory facilities, which have been made possible by the Marshall Plan in many European countries, are excellent.

Bietti's clinic in Parma, Italy, has many interesting projects. The study of *audiometric examinations* in ocular disease may be an aid in ophthalmological diagnosis. Cochlear defects were found in patients with early glaucoma, and the decrease in hearing was more pronounced in the audiogram taken during induced anoxia. He feels that cochlear defects are probably the rule in glaucoma and that audiographic recording may be useful in early diagnosis. *Anoxia* produces moderate changes of visual functions in normal persons, but it may also be the means of discovering early ocular disease.

Blind spot enlargement in glaucoma, the appearance of a central scotoma or marked decrease of visual acuity, a reduced peripheral visual field in certain neuroretinal diseases, and the occurrence of early hemianopsia may be brought out. The localization of a lesion may be possible by the difference in results of the two methods used in producing the anoxia; i.e., by compression of the eyeball which reduces the oxygen locally, and by general anoxia which involves the function of the entire visual pathways.

An *increased oxygen supply*, by inhalation of pure oxygen at atmospheric pressure, is also used by Bietti for diagnosis and prognosis. If it reduces an existing scotoma or improves diminished visual acuity, it may indicate that the pathological condition is not as severe as it appears and that some recovery may be possible. In glaucoma one may foresee stabilization or improvement of function after the pressure is lowered by surgery. He obtains local oxygenation by injecting oxygen into the subconjunctival space, into Tenon's capsule, or by retrobulbar injection of vasodilators, such as nicotinic acid.

In London, Dr. Norman Ashton showed his experiment with oxygen as it affects the retinal vascular system of the kitten. While directly observing the retinal vessels they are seen to constrict, and the retina becomes pale when high concentrations of oxygen are administered. Continued use results in vascular occlusion, retinal edema, and neovascularization. He applies this practically as proof of the effects of oxygen and the resulting anoxia in retrolental fibroplasia.

Research in *tonometry and tonography* is being done at several places in

Europe. In the Institute of Ophthalmology in London a tonometer has been devised which is suspended from a headband and electronic recordings are made on a rotating drum. Goldmann, in Bern, has a new tonometer which is attached to the arm of the slit lamp. We are working with the Bureau of Standards in Washington on the possibilities of developing a tonometer for mass screening of glaucoma, by utilizing a rapid air jet to indent the cornea. It may be possible to employ high speed photography or sonics to calibrate the amount of indentation and convert it to intraocular pressure.

Much active research is going on in Franceschetti's excellent clinic in Geneva. His genetic clinic has no counterpart elsewhere, and a large series of cats with heterochromia is the subject of an interesting study. Research in corneal transplantation, using intralaminar heterogenous grafts, has shown that whole horse cornea transplanted within rabbit cornea will remain clear at least for one year. This is similar to the work of Maumenee at Stanford University in California. Preliminary experiments in our own Ocular Research Unit with the dehydration of cornea may revolutionize the storage of donor material in the future.

Several centers in Europe are interested in electroretinography. Franceschetti applies the procedure clinically in differentiating between degenerative chorioretinal conditions, such as retinitis pigmentosa, and pseudoretinitis pigmentosa from old inflammatory lesions resulting from syphilis, measles, etc. It is useful in examining the children of retinitis pigmentosa patients to prognosticate their future, even before abnormal fundus changes

appear. Unilateral retinitis pigmentosa may be differentiated from senile gyrate retinitis by the electroretinogram. The B wave is negative or missing in retinitis pigmentosa.

We employed electroretinography in the examination of American soldiers who had been prisoners of war in Korea and who suffered from irreversible nutritional amblyopia. We are not aware of any similar studies on previous cases of this type. Although there is still some confusion as to how the electroretinogram is related to the rods and cones, it is our opinion that one site of the pathology in nutritional amblyopia is in the retina, at least in a large percentage of cases. Rod and cone disturbance is suggested although involvement of the bipolar cells and ganglion cells is a possibility.

Teaching

Teaching is active in all the larger clinics in Europe in association with their medical schools and in postgraduate training. The clinics in Vienna are attempting to regain the popularity they achieved in years past when many thousands of English-speaking physicians studied there. The Vienna Academy of Medicine is comprised of the Medical Faculty of the University of Vienna and offers courses in all subjects. The first courses ever given there in English were in ophthalmology, under the direction of Professor Ernst Fuchs. Instruction is available at both University eye clinics by competent staffs with such professors as Lindner, Pillat, Safar, Hruby, and others. Courses of varying lengths are offered in all ophthalmological subjects, basic and clinical, at six dollars per hour. This is prorated depending upon the number of students in a class,

with a fee of one dollar per hour in courses with six or more students. Individual intensive instruction and operative clinics are arranged. There is an American Medical Society of Vienna which maintains an office and a library to assist American post-graduate students.

The European clinics deserve a visit from every American ophthalmologist who is proud of his specialty and who is interested in its history and tradition. Many well-known forefathers of our profession were active there.

COMMENT ON DR. WALLACE'S ARTICLE

Much interest has been expressed in Dr. Helen M. Wallace's article on the New York City program for visually handicapped children that appeared in the Winter 1954 Issue of the *REVIEW*. Comment indicating that one point needs clarification, however, prompted Dr. Franklin M. Foote, NSPB executive director, to write Dr. Wallace as follows:

"We have been asked: 'In view of the statement on page 219 that children placed in sight conservation classes must have normal mentality, does not this mean that children who have less than normal mentality and who are partially seeing must look outside the New York City school system for educational help?'"

"Would you be good enough to inform us whether or not the inference drawn from your statement is true?"

Dr. Wallace's reply:

"The conclusion reached by your questioner is erroneous and I hasten to correct it. Sight conservation classes, like the regular classes in the New York City schools, are for children of normal mentality. If a child's mentality is considerably below normal it is

believed that such a child needs many special adjustments in his curriculum and, therefore, that the regular program as offered in sight conservation classes and in regular classes is not suitable for his needs and abilities. For this reason the Board of Education has set up a number of classes for mentally retarded children. In these classes the children are taught by teachers who must meet State Department of Education standards and who are specially qualified to assist them in their education. If a child placed in such a class has a visual handicap and is classified as partially seeing, large-print materials and other help are made available to him just as they would if he were in a sight conservation class. He is also provided with special seating in relation to light and to the chalkboard, depending upon his eye condition. The supervisors in braille and sight conservation of the Board of Education consult with his teacher concerning any other special adjustments that need be made. At the same time all of the educational materials given him are adapted for his mental level. Thus, there is no reason for a child of low normal mentality who is also visually handicapped to go outside the New York City schools for his education unless he should wish to do so for some reason not related to either of these problems.

"I am sorry that my article did not make this point clear, but we were simply studying the diagnostic medical eye status of all the children placed in the sight conservation and braille classes."

MODERN LIGHTING

The entire February issue of the *Journal* of the Illuminating Engineering Society was devoted to the progress made in lighting techniques during the last few years. Recent developments noted were the modernizing of school lighting equipment, and the priority of the fluorescent lamp, which now produces more lumen hours than any other artificial light source.

AIDS FOR CHILDREN with SUBNORMAL VISION

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The cases cited by the author indicate that remedial work with amblyopic children is often richly rewarding. In addition to carefully selected visual aids, a thorough understanding of growth patterns and individual responses is essential to success.*

THOSE of us interested in the development of children realize the challenge presented in helping each child to become increasingly independent and self-reliant. A thorough knowledge and understanding of growth patterns is imperative. Each of us needs to know what to expect at every stage of development. Such understanding makes it possible to encourage the child to grow up to, and within, his own capacity. The visual consultant armed with this knowledge readily realizes that the emphasis is changed from mere refractive measurements to an interpretation of how the child applies his new correction in everyday life.

In aiding the child with subnormal vision there is even more emphasis placed on his level of development. Inadequate vision during early childhood imposes unbelievable limitations on ordinary growth and behavior. Helping parents and school personnel to understand and accept these is the toughest job the visual consultant encounters. Many conferences are often required before any program can be

started. The case history should be reviewed, and a careful examination made to rule out any possibility of active pathology. No matter how hopeless the case appears during the initial refraction it is wise to attempt to interest the child and reappoint him for further study. The wise refractonist moves slowly and sympathetically in striving for increased visual acuity in order to allow the child to adjust.

Today's Living Areas

Because of today's restricted living areas and concentrated leisure activities at near point, visual efficiency as measured by such tests as the Leber-sonh near vision charts is becoming more widely accepted. Here 20/50 vision as determined on the reduced Snellen card is expressed as 76.5 per cent of visual efficiency rather than the 40 per cent so often accepted on the Snellen rating.

For instance, one quite hyperopic esotropic child is living in a trailer only eight feet wide. The limitations imposed by these pent-up surroundings necessitated the application of additional plus for her indoor activities. Many less extreme but equally significant problems are encountered due

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, New York, March 16, 1955.

to living in rooms that are now half the size of old Dr. Snellen's office.

Gesell pointed out that the average child becomes visually intrigued with bright objects by eight weeks of age. From then until 18 months his field of near vision develops so that he feels quite at ease with persons and movements near him. After two his spacial relationship enlarges to include the recognition of things in the distance. He begins to run and move about in a new environment with comparative ease. The ability to observe objects and comment on them increases as he nears two - and - a - half. His general friendliness, and remembrance of new people and places, denote growing visual maturity.

Signs of Amblyopia

Wandering eye movements and faulty responses characterize children with amblyopia after two. A fear of moving objects beyond arm's length is also noted. Security in balance depends upon tactual and auditory acquaintanceship rather than visual perception.

"V" was carried to the office at 18 months. Ambulation was poor and could scarcely be called walking as only the most faltering steps were possible; these only if she were guided by the parent. Even after several visits she insisted on climbing the entrance stairs on her hands and knees. Her mother reported fear of the movement of their small dog, though "V" could support herself as she petted their larger one. It took weekly visits for over two months to acquaint the child with the toys and the atmosphere of the office. After six months she took the orthoptist's hand and led the way to the visual stimulation room.

Albinism and Nystagmus

During "T's" early life his family were given the impression that his albinism and nystagmus were so severe that glasses would be useless. However, at the age of seven, one year before seeing us, he was fitted with bifocals which gave 20/200 at distance and 20/100 at near point with a plus four addition. Following "T's" referral we were able to obtain from the division of special education of the Ohio State Department of Education a complete background history. This included his mental level, reading grade level, physical, social and emotional background. With this information the orthoptist can proceed to place the child in situations where he is sure of success. With "T" this was easy, as he had an I.Q. of 115, and a reading level at his third grade placement.

Fixation stimulation was given at the office and at home. An Aloe Unit was supplied for reading. After three weeks fixation had improved greatly, his nystagmus was reduced, and acuity at near point increased to 20/50 on a reduced Snellen target at five inches with both the Aloe Unit and his bifocals. Binocular fusion training was instituted. Fusion and gross stereopsis were obtained. "T's" acuity and depth perception are slowly improving with each monthly treatment.

On "T's" second visit a telescopic investigation was made with a 2.2X telescope. Distance acuity was improved to 20/80. With a plus ten reading cap his near point was 20/30 and half of the 20/20 line. Due to the child's age of eight years, his limited requirements, and the improvement being made with the Aloe Unit as he is given flash and fixation stimulation, it

has been decided to continue the present program for a while before fitting the telescopic correction. Cases requiring high corrections for astigmatism such as "T's" seem to require time to gain the full benefit from their correction. As his visual needs increase he will be supplied with a telescopic unit.

Since "T" can now read with his 20/50 acuity any school text that would be required for his age (approximately 12-point) we recommended through the division of special education that he be returned to his regular school classes. We feel that he will make far greater progress as a member of his own family and community. His previous education in a class for the partially seeing for two years had necessitated his being boarded 75 miles from home.

Phases of Development

The experience of "L," another child with nystagmus and albinism, has verified our feeling that a telescopic unit may not be too practical for the child under eight. There are so many other phases of development besides reading or near point activity during these early years that it seems wiser to prescribe the added devices as the child's own needs warrant.

At six "L" was fitted by another refractionist with a Knollmorgen telescopic unit which he refused to wear. On checking we found that the lens had turned in the frame and was off axis. But even when we had corrected this difficulty so that he could read 20/30 at near he preferred his old bifocals which gave him only 20/60 at three inches. His October refraction at age eight indicated a relatively high cylinder of approximately four diopters.

This was prescribed in full with a six diopter reading addition in place of the one-and-a-half that he had been wearing. The new correction immediately doubled his near point acuity and improved his bodily posture and balance. An improvement in distance acuity was noted within one month. His near point actually came up to 20/25. This is another typical example of the need for accurate refraction, full astigmatic correction, and the use of strong bifocal additions where needed.

Value of Family Conference

Another procedure often overlooked is the family conference whenever a correction is supplied. The monthly reappointments are continued until the orthoptist feels certain that the amblyopic child is making the best possible adjustment to the prescription. During these conferences the orthoptist uses every counseling technique available to assure the child that he is capable of achieving his visual goal. He soon learns that the over-protective, solicitous attentions of his parents are only a hindrance to his final success.

Gaining self-assurance, the child is encouraged to demonstrate his reading before his parents. Here the orthoptist sets the stage so that mistakes are minimal. When the child with amblyopia can gain sufficient speed his ideas are stimulated. This stimulation overcomes many a pitfall in word recognition.

Case of "M. L."

Another most interesting case was "M. L.," aged 10, diagnosed as having a forceps injury at birth. Versions were poor and noncommittal; there was a high exotropia under the cover test

and a short, rapid nystagmus. Visual acuity was O.D. 20/60, O.S. 20/100 when seen on March 11, 1954, and could only be improved to 20/60 OU with the best prescription. Only gross fusion could be elicited.

This child was most unhappy and considered a freak by her family and acquaintances. She constantly read, holding the book within five inches of her eyes. On her first visit with the orthoptist she completed all the tachistoscopic slides, phrases and five- to eight-word sentences in 1/100 of a second. Her greatest pleasure was the 24-point books, a page of which she could read in one minute, at a four-foot distance. Binocular training was begun with emphasis on distant fusion and stereopsis. A home flashing unit and stereoscopic cards were supplied. After six months of weekly visits her acuity was 20/25 binocularly and her fixation was improved greatly.

Problems Surmounted

A brother and sister, "S" and "G," age 11 and 16 respectively, were previously diagnosed as having retinitis pigmentosa. After examination they were given fixation stimulation and supplied with telescopic units immediately. Both were prominent in school activities even though their measurable acuity at distance was 20/400. The boy played football; the girl won first prize in speech contests. They were particularly proud of their participation in the band, and were skillful equestrians. In each case there was a significant improvement at both distance and near with a bifocal prescription. Their comments were interesting after the correction was first supplied. Their excitement was thrilling as they described the movement of

a squirrel, the feeding of pigeons in the park across the street and the details of purchasing an ice cream cone. The fairyland of store windows kept them walking around the city alone, for the first time in their lives.

The telescopic examination for both indicated visual acuity at distance 20/100 and at near 20/30 reduced Snellen. The corrections were prescribed and a course in their use carried on throughout the summer. After three months their acuity improved to almost 20/80 at distance, enabling them to read from the chalkboard with the 2.2X telescope. With the +10.00 cap they could now read approximately 20/20 at near.

They wear their telescopes for chalkboard, movies and television where bodily movement is not required. The reading cap is used for all detailed close work, and the bifocals for general activity. Now they have completely surmounted their visual problems. The girl will enter college next fall. They read their own lessons for the first time in their lives and are independent in work and recreation. They are looking forward to being self-supporting.

When a child can be supplied with a visual aid, administrators find that the cost of educating him can be cut through the elimination of board, transportation and tuition, because he can now remain in his own district.

Devices and Methods

Devices and methods used with the partially seeing depend entirely on the child's responses, and his choices as vision develops. There is no stereoptyped course of procedure. Each case is individually tailored. The orthoptic room contains bright toys, puzzles

and games that interest the child from two to 10. There are shelves of books within easy reach.

Conferences with the physician or other referring person are usually held before the child is seen. Thus we become familiar with his history and development, greet him with more understanding, and can more easily guide him to an activity on his achievement level. The Dolch Word Picture Cards and Popper Cards containing the basic reading vocabulary give insight into the child's readiness level without the necessity of handing him a book to read. These cards are printed in 18-point type and often prove more stimulating than books to elementary-age children.

Even though we use books in 24-point type each child is given an opportunity to choose the subject with which he prefers to work during flash and fixation stimulation. The type of flash is also geared to ability and perceptual span. We can use an automatic, 14-flash-a-minute electric plug, a manually operated flasher, or the tachistoscopic exposures where the duration of the flash may vary from one second to 1/100 of a second.

Flash and fixation stimulation is given to encourage the amblyope to feel that he is seeing more accurately and extending his interest in what he sees. The basic form series (line drawings of familiar objects) for the tachistoscope has proved an excellent starting point for many partially seeing children.

First Use of Book

After the orthoptist is assured that the basic sight vocabulary is sufficient to permit success with a book the child chooses one which he wishes to

read and tries a few pages orally. If he fails to recognize a word while the book is illuminated the orthoptist often removes the light and permits him to think about the story. He can usually guess the word that will complete the meaning, or he may need a slight clue. When the strain of looking is cut to a minimum and the child gains confidence in interpreting what has been seen, he will become enthusiastic and anxious to improve. The orthoptist is particularly acute to signs of fatigue, as enthusiasm and motivation must be kept at a very high pitch throughout every orthoptic session.

All children under this training have flashing lamps for home use, and are encouraged to set their own pace as to the length of the flash they prefer, so that they become encouraged as they note increased speed and proficiency in reading.

Binocular Training

As soon as visual acuity has developed sufficiently to permit gross fusion, binocular training is instigated. Here it is most essential to have a careful muscular balance analysis, and include compensation for imbalances particularly in the vertical. This must be measured and checked by several methods during fusion, even though fleeting, and corrected to one-half prism diopter.

Summary

The first step in the rehabilitation of an amblyopic child is a careful analysis of his present status of visual achievement, based on his interests, needs, degree of visual loss and ability to interpret and apply what he sees.

The case history should be reviewed

and an examination made to rule out any possibility of active pathology.

A careful refraction, sometimes entailing several visits, is required to attain the best possible lens correction, including the accurate determination of astigmatism, the degree of fusion, if present, and muscular balance. Any significant amounts of ametropia should be corrected, particularly astigmatic, to place the clearest image obtainable on the retina regardless of immediate improvement in acuity. This often develops with use.

All types of aids should be investigated: high-powered reading additions in bifocals or conventional-type reading lenses; telescopic corrections for restricted distance use; telescopic or microscopic combinations for reading. The advantages and disadvantages of each must be weighed against the need.

The child should be taught how to use his new aids and to take full advantage of the sudden increase in central acuity, with an accompanying reduction of the peripheral field. Full cooperation and a complete understanding of the child's problems are essential.

For best results a preliminary conference should include teacher, parent, orthoptist and refractionist. There should be subsequent exchanges of information and a complete report by the refractionist as to how and when the various aids should be used.

The criterion of success or failure in subnormal vision work is not a minimum Snellen visual acuity, or a percentage of increase, but the patient's ability to develop visual efficiency with his aids, through training and practice; to meet to the fullest possible extent his every requirement. A complete understanding of his growth pat-

tern and his expanding needs is essential. In this connection wise, cooperative parents have been of continuous assistance. It is certainly rewarding to be part of the team that helps children develop into useful citizens in their own communities.

OPENINGS FOR SPECIAL TEACHERS

A vision consultant is needed for the public schools of Northern Westchester County, New York. Children with visual difficulties are taught in the regular school classes. The consultant would advise the teachers and administrators and occasionally serve as resource teacher to the children themselves. A salary of \$5,000 is offered. Applicants may write Dr. C. G. Dunsmoor, Director, Board of Cooperative Education Service, Katonah, N. Y.

The public schools of Odessa, Texas, are starting a new program in sight conservation at the elementary level, and have openings for two teachers of the partially seeing. Teachers with a bachelor degree and no experience will start at \$3,850 annually, with \$80 additional for each year's experience up to six years. Teachers with a master's degree will start at \$4,050 with \$110 extra allowed for each year of teaching experience up to six years. The teacher must be certified in the State of Texas, and the requirements for certification can be obtained from Dr. H. E. Robinson, State Department of Special Education, Capitol Hill, Austin, Texas.

EYE STUDY ATTRACTS PHYSICIANS

Marked interest in ophthalmology is displayed by physicians taking postgraduate courses. A two-and-a-half year survey by the American Medical Association tabulates the choices made by physicians taking refresher or specialty courses. Although only four-and-a-half per cent of the total course-hours offered were in the field of ophthalmology, 10 per cent of the hours spent in advanced study were in that subject.

IMPORTANCE OF MEDICAL-SAFETY TEAMWORK

L. C. HATCH, M.D.

Medical Director
Goodyear Tire & Rubber Company, Akron, Ohio

Medical and safety departments have a mutual objective—the health and well-being of each patient-employee.*

HEALTH cannot long be maintained without the strict application of preventive measures, and these must include safety. No labor leader would object in principle to measures designed to protect the worker. No production foreman would oppose the program outlined by the safety department. No reasonable employee would refuse to follow a detailed manual of instruction designed to prevent accidents or illness. No physician would fail to appreciate all the great benefits which might result from safety efforts.

All in these various categories have contributed much to safety accomplishments in recent years. Each group would not only acknowledge the need for full cooperation in safety, but might even claim to be the leader in that field.

This is the picture we get on first glance. We all agree upon safety in theory. How is it working in practice? Are we, in our daily conduct, sanctioning our preaching by our practice?

A few leading industries emphasize the preventive medical aspect of safety by having safety and hygiene person-

nel answer to the medical director in line of authority. In a few others the medical and safety directors answer to different executives and have little or no direct association. I was once told by the medical director of a large company that, in his opinion, "the medical department should keep out of safety," and that he would "make certain that the safety department keeps out of medicine."

Advantages of Mutual Support

Fortunately in the great majority of industries today there is close association of medical and safety personnel and harmonious support on mutual problems. I can think of nothing more essential than the constant cooperation and encouragement which the industrial physician can give to all who strive for safety improvement. Without this a safety program becomes ineffective. Friction among the personnel of these two departments is simply intolerable and takes on the aspect of suicide for those who endeavor to shortcut safety.

During recent years we have accomplished miracles in accident prevention and plant hygiene. Accident frequency and severity have been reduced 40 per cent during the past 10

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, New York, March 16, 1955.

years. In the rubber industry the reduction has been 50 per cent and in The Goodyear Tire & Rubber Company 60 per cent. In engineering and hygiene we have guarded our machines and cleansed the atmosphere; assigned many hours to supervisory training. Why, then, does industry continue to have an appalling number of accidents, with associated pain and suffering, loss of income and services?

I believe that several factors are responsible. Human error and personal disregard of safety rules and regulations are perhaps the greatest deterrents to continued success. We see this best illustrated on the highways where killing, crippling and property damage by automobiles are largely due to human error rather than to machine failure. I am sure that 90 per cent of the 300,000 eye injuries that occur yearly in industry are the result of personal error and neglect on jobs for which eye protection is recommended and made available.

Element of Human Error

Seldom do we see a serious accident in which human error is not only evident upon investigation but usually is admitted by the injured employee. For example, the chap who attempted to wash off a staining chemical in a solution of plasticizer and as a result had the skin of his hands removed in glove-like fashion. The man who placed his cigarettes on a ledge which he reached by standing on a non-moving conveyor, and who later lost his leg when he tried to get the pack by standing on the conveyor when it was in motion. The employee who in error ignited his trousers that were impregnated with highly inflammable solvent, and an associate worker who made the

fatal mistake of trying to put out the fire with a pail of gasoline which he thought to be water. (The gasoline in an open pail, of course, should not have been available.)

Safety measures frequently fail because of laxity in discipline or lack of enforcement on the part of management, labor, supervision, the medical department or even the safety department. Management, in view of its liability for injury or illness and the costs of prevention programs, stands to lose the most in such situations. This management acknowledges; yet how often do we see new methods adopted, including complete installation of machines and materials, with little or no advance thinking on health or safety. How often do we see an otherwise successful operation made unprofitable and difficult by a toxic environment or other hazards, necessitating changes at great cost—changes which could have been made conveniently and cheaply as part of the original installation. How often after correction of health and safety hazards do we see operations fail to function as well as they might have had these measures been incorporated originally in the process.

An unfavorable psychological effect on individuals and groups always follows injury or illness related to employment. Lack of diligence in safety matters often results in bad habits of conduct on the part of management as well as of employees, and corrective measures are difficult to carry out. People become accustomed to neglect; they resent change; they know their jobs, so they think. They say, "We have always done it this way and no one has been seriously hurt. What's all the big fuss in the safety depart-

ment?" Or: "I don't believe the doctor knows what he's talking about. We know how to use this stuff and it's perfectly harmless." Thus an enterprising chap talks to his friends, perhaps his boss, and gets a bit of support in opposing the enforcement of a good safety practice long neglected. Early establishment and strict enforcement of safety procedures make for success, are less difficult and less costly. This does not mean, however, that just because we have long delayed in instituting such a program we are justified in delaying longer. The most appropriate time is now, not tomorrow.

Labor a Vital Influence

Organized labor is a vital influence in the success of any safety program. Union representatives in most of our larger industries are active in safety councils, and have contributed to our good record. We find, however, that sometimes a labor representative will support delinquency and vigorously defend an unsafe practice. This action is usually related to his efforts to get medical limitations and job restrictions removed on employees who object to such restrictions despite the medical indications for health and safety precautions. The principles of militant opposition should not be applied to safety for temporary financial gain to an individual or political continuance of a group.

Best Utilization of Services

The pre-employment physical examination formerly was intended to determine fitness without limitation. If the applicant passed successfully it meant that he was approved for any and all work so far as physical ability was concerned. Thus many capable

applicants who had only minor limitations were rejected. Today such examinations are intended not to exclude the physically imperfect but to detect limitations, so that the services of each applicant can be utilized to best advantage. This policy makes for safety and health maintenance; also for the employment of the handicapped and, to a reasonable degree, those with medical limitations. It means, however, that we must continue to take cognizance of the limitations. The department manager may fail to review the employee's records, or the employee neglect to mention his limitations. The latter may desire to continue work at all costs or to get a better-paying job, and by favorable representation of his limitations and a biased description of the proposed new work may persuade his family physician to issue a medical statement approving the transfer. Such an opinion appears to be in conflict with that of the plant physician and the original restrictions. The employee may feel that the restrictions are removed, that health is restored, and all is safe. I wish it were that easily and quickly done. Rarely do I find any difference of opinion between plant and private physician, once both have the facts on the job requirements and hazards.

Compromise Not Sanctioned

Once a private physician called me regarding one of his elderly patients employed by our company. Her health was such that she should not be allowed to return to work; but she was so determined to do so that he had given her a note of approval. He asked if I would mind helping out by disapproving her, inasmuch as all members of her family were his patients.

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We should not compromise and negotiate on matters pertaining to safe practice. Cooperation in truth is essential if we are further to improve our safety and health records. Management alone cannot cope with this problem. Labor alone cannot solve it. The safety department must have the full and constant support of all. It is highly important that the physician confine himself strictly to medical decisions and that he function on a professional basis, in private or industrial practice.

Medical ethics and professional conduct do not require him to neglect prevention and acquiesce in halfway measures considered adequate by the patient. Medical ethics do not forbid his giving counsel to management and working closely with labor, the department manager and the safety department. Closer association of private and industrial physicians in relation to mutual problems of patient-employees and professional counsel with all groups striving for accident prevention and health maintenance are most important in achieving teamwork and greater understanding.

Industrial Health in Birmingham

Some interesting facts about the operation of an Industrial Health Council in Birmingham, Alabama, were presented recently in the *American Journal of Public Health* by Dr. George A. Denison, health officer of the Jefferson County Board of Health, Birmingham. This council conducts a program of popular health education, multiphasic screening, evaluation of abnormal findings by a part-time clinician, and referral to private practice for observation and treatment. When

the council was formed in April, 1947, its membership consisted of nine firms employing a total of 1,500 persons. By the end of 1953 it had grown to 236 firms employing a total of 34,908 persons.

In 7,792 vision tests given between July 1, 1952 and June 30, 1953, 964 subjects were found to have faulty vision. As a result of these tests, which are done biennially, the 12 per cent with faulty vision have been referred directly to specialists. Where impairments are critical the help of management is sought in seeing that prompt medical attention is received.

Determinations of intraocular pressure have not been made since 1951. At that time 27 of 2,864 persons over age 40 who were examined, or slightly less than one per cent, had pressure of 26 mm. of mercury or above. Previously unknown glaucoma was definitely established in eight.

FIREWORKS BRIBERY CASE

Connecticut's highest court on April 25 upheld the bribery charge conviction of former State Representative William M. Foord of Litchfield, and Clifford B. Backes, Wallingford fireworks manufacturer.

Foord, an attorney, was accused of accepting a \$1,500 bribe to push legislation which in 1951 gave the Backes firm a temporary monopoly in the manufacture of 2-inch "salutes" in Connecticut. Upon conviction in Superior Court, each drew a \$1,000 fine and a suspended one-year jail sentence; the Supreme Court ruled unanimously against them on appeal.

The case turned on \$1,500 given to Foord by Backes; both called it payment for legal services performed prior to the 1951 legislative session.

Disclosure of the payment during the 1953 session was a factor in the adoption of the present state-wide ban on fireworks.

SUNGLASSES*

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SUNGLASSES are to be used when protection against radiation from the sun is necessary. For the eye three bands of wavelengths are of interest: ultraviolet, visible light, and infrared. All three are contained in sunlight at sea level.

Erythema ultraviolet (of wavelengths of about 290 to 320 $m\mu$) is absorbed in the superficial layers of cornea and conjunctiva, and in large doses produces "welder's keratitis" and so-called "snow blindness." Ultraviolet of longer wavelengths penetrates deeper into the eye, and much of it is absorbed in the lens.

Of the visible light about half is absorbed in the transparent media of the eye, the other half is absorbed in the retina and choroid, mainly, in their pigmented layers. In these layers burns can be produced by excessive amount of visible light. Only a rather small part of the incident visible light is the basis for vision. If the amount of visible light is too high, the efficiency of the eye is diminished in such functions as contrast discrimination, visual acuity, and color vision.

Near infrared radiation is absorbed in all the media of the eye, especially the vitreous body, and the pigment layers. In the pigment layers, burns from excessive infrared radiation are possible.

* Reprinted from Medical Technicians Bulletin. Supplement to U. S. Armed Forces Medical Journal. Vol. 6. No. 1. January-February 1955.

The decisive question for the use of sunglasses is the risk caused by the above-described radiations. If one looks directly at the sun, as in eclipse observations, a permanent so-called "eclipse burn" of the choroid and retina can occur within seconds. Sunglasses for general wear are not satisfactory and will not prevent this type of burn. Fortunately our normal reflexes prevent us from looking at the sun for sufficient time to produce such burns.

The keratitis-producing ultraviolet rays are poorly reflected by our everyday surroundings. A man looking at a lawn or freshly turned soil at sea level all day would not need specific protection against this radiation. Snow and sand reflect more of this radiation and a higher amount is contained in sunlight at higher altitude. Under these conditions protection is advisable—this is provided by any clear or tinted crown glass lens 2 mm. or more in thickness.

A reduction of visible light is not always necessary when objects illuminated by the sun are viewed. Visible light reflected from sand, snow, water, clouds, white paint, concrete, aluminum, or other surfaces, however, can be sufficiently bright to cause glare. Tinted glasses with an absorption appropriate to reduce the brightness to optimum level for vision are then advisable. Lenses with 10 to 25 per cent transmission are usually effective. Visible and infrared radiations are not contained in diffusely reflected sunlight at any altitude sufficient to cause chorioretinal burns. Consequently, there is no necessity for infrared absorption in sunglasses for general wear. Such absorption is often included in sunglasses, however, because it is technically easy to provide and may

contribute to the convenience of the wearer.

Type N-15, gray glasses, currently issued by the Air Force and Navy, for pilots, were chosen especially for their neutral transmission. They reduce color distortion to a minimum. Their visual transmission is between 12 and 18 per cent. The transmission for erythema ultraviolet is below 0.2 per cent and that for near infrared is below 15 per cent. Such glasses give adequate protection for general wear in bright sunlight. For welding and sun-scanning special glasses are necessary.

SILVER NITRATE ENDORSED

Ophthalmia neonatorum prophylaxis was discussed at a round-table conference on ocular therapeutics at a joint meeting of the New York Academy of Medicine's Section on Ophthalmology and the New York Society for Clinical Ophthalmology, and reported in the *American Journal of Ophthalmology* of January 1955. The discussion panel was composed of Drs. Conrad Berens, Irving H. Leopold and Frederick H. Theodore, with Dr. Isadore Givner as moderator.

Dr. Givner noted that the Sanitary Code of New York State requires the attendant to instill one per cent of silver nitrate or its equivalent in the eyes of the newborn to prevent ophthalmia neonatorum. Because the alternate of an "equivalent" is allowed, the question arose as to the efficiency of the various substitutes in use today.

Dr. Berens observed that this question had been investigated several times since 1948 by committees of the New York Academy of Medicine, the American Medical Association, the Association for Research in Ophthalmology, and the consultants to the

National Society for the Prevention of Blindness. All had arrived at the same conclusion, which he personally shared: that it would be inadvisable to change from silver nitrate since the effectiveness of the various substitutes had not yet been proved conclusively.

Dr. Theodore and Dr. Leopold both commented on the use of penicillin ointment as a substitute for silver nitrate, pointing out certain unfavorable factors. They endorsed Dr. Berens' view that using silver nitrate was still the best course. It was the consensus of the panel that, for the present at least, the time-honored Credé method should be continued.

GREAT PHYSICIAN REMEMBERED

A \$1,000 gift to the National Society has been sent in memory of the late Dr. F. Park Lewis of Buffalo, N. Y., who died in 1940. The contributor writes of him as "a great physician and a fine friend . . . (who) saved my sight 25 years ago."

Dr. Park Lewis was one of the founders of the National Society, an outstanding leader in early prevention of blindness efforts, and an inspiration to all who were associated with him.

EVERYTHING THAT I CAN SPY

Everything that I can spy
Through the circle of my eye;

Everything that I can see
Has been woven out of me!

I have sown the stars, and threw
Clouds of morn, and noon and eve

In the deeps and steeps of blue!
And all else that I perceive,

Sun and sea and mountain high
Are made, are moulded by my eye!

Closing it, I do but find
Darkness, and a little wind.

James Stephens in "Collected Poems."
The Macmillan Company. 1954.

NOTES AND COMMENT

• Trifocals Evaluated

The advantage of trifocals over bifocals is that they provide better visual acuity at the intermediate distance, namely 20 to 50 inches from the patient's eyes. The intermediate segment gives better vision at this distance than either the distance or near segments of bifocals, especially to patients who require a reading add of 2.00 or more.

In the January *Eye, Ear, Nose & Throat Monthly's* "Strabismus and Refraction" feature, edited by Dr. Abraham Schlossman, a report is given of the results obtained when ten persons from different walks of life were tested for comfort and visual acuity with trifocals. Seven had been wearing bifocals up until that time, while the remaining three used only reading glasses. In every case the vision at 27 inches proved better when trifocals were used, and only one of the ten found them uncomfortable.

It was concluded that most patients adjust to trifocals as easily as to bifocals, or even more easily, and that the former provide greater visual comfort in most cases.

• Oklahoma Law Upheld

The Supreme Court has unanimously upheld an Oklahoma law which forbids any but licensed ophthalmologists or optometrists to fit optical appliances except by prescription.

The court's opinion, written by Justice William O. Douglas, declared the Oklahoma law in the interest of public health and welfare. The effect of the law, Justice Douglas said, is to "forbid the optician from fitting or duplicating lenses without a prescrip-

tion from an ophthalmologist or optometrist."

The law had been attacked as violating the due-process clause of the Constitution. One of its provisions banned the advertising of optical appliances. Twenty-seven other states have similar bans.

• Magnet Indicated

The case of a small boy who was shot in the left eye by an air-gun is reported in the January, 1955, *British Journal of Ophthalmology*. On the basis of information supplied by the child's mother as to the appearance of the pellet, the examining ophthalmologist assumed it was made of lead and therefore impossible to extract with a magnet. Since the eye was very badly damaged an enucleation was performed. When the pellet was later removed and examined in a metallurgical laboratory it proved to be made of steel with a thin film of brown paint and, of course, it was magnetic.

In this instance it was felt that the eye could not have been saved under any circumstances. Cases might well occur, however, in which damage is not as great and in which it would be possible not only to save the eye but to achieve useful vision as well. For that reason the author strongly recommends attempting to use a magnet in any similar case where there is the slightest hope of saving the eye.

• Delaware Eye Clinics

In 1951 the Delaware Commission for the Blind expanded its medical program to include a reporting system on all retrolental fibroplasia cases. With the assistance of Dr. W. O.

LaMotte, Jr., a central reporting clinic for these cases was established. According to the Commission's latest annual report this has now grown into an eye screening clinic for children at the Delaware Hospital in Wilmington, under Dr. LaMotte's direction.

While this clinic was being developed another Wilmington ophthalmologist, Dr. Davis G. Durham, screened the Commission's entire caseload exclusive of RLF cases. This screening continued from September 1953, through June 1954, and covered 640 cases. Recommendations for re-evaluation were made on 277 of these. The Commission's field workers then contacted the clients, arranging for their re-examination and transportation.

One hundred and twenty - three clients reported at Dr. Durham's private office, where free clinics were held at two- to three-week intervals throughout the year. In the Kent and Sussex areas Dr. Robert Dickey gave his services if the client preferred to be examined in his own community. Medication or surgery, or both, followed the examinations whenever indicated.

Cataract surgery was recommended in 53 cases, performed in 20. Regular lenses were recommended in 64 cases; conditioning lenses in 14; telescopic lenses in 50. In 35 of the latter the lenses were procured. Medical treatment was given in five cases and one artificial eye was provided.

• Orthoptic Services

For the benefit of those ophthalmologists interested in obtaining the services of a qualified orthoptic technician, the American Orthoptic Council has notified the American Academy of Ophthalmology and Otolaryngology

that Miss Laura B. Drye, director of the Confidential Placement Service of the American Association of Orthoptic Technicians, will be happy to be of assistance. Miss Drye's address is Eye and Ear Hospital, 230 Lothrop Street, Pittsburgh 13, Pa.

• Pan American Congress

Santiago, Chile, will be the site of the Fifth Pan American Congress of Ophthalmology, to be held January 9-14, 1956. Twelve symposia are planned, dealing with the following subjects: Collagen Diseases, Glaucoma, Infantile Glaucoma, Secondary Glaucoma, Strabismus, Detachment of the Retina, Psychosomatic Ophthalmology, Tropical Diseases, Physiopathology and Surgery of the Crystalline Lens, Plastic Surgery, Visual Fields and Neuro-Ophthalmology, and Intraocular Tumors.

Participants in the various symposia are equally divided in numbers between ophthalmologists from the United States and Canada and from Latin America. Dr. Rene Contardo, 930 Huerfanos, Santiago, Chile, is the Secretary-General and will provide further information.

• Dr. Alvaro Honored

Dr. Moacyr E. Alvaro of Sao Paulo, Brazil, was awarded the Gold Medal of the Centro de Estudos de Ophthalmologia at a special meeting held in the main auditorium of the Paulista Medical Association, Sao Paulo, on February 12, 1955. This honor was bestowed upon Dr. Alvaro in recognition of his outstanding contribution to the progress of ophthalmology in Brazil. After receiving the medal Dr. Alvaro spoke on "Recent Trends in Organized Ophthalmology."

• Proctor Laboratories Dedicated

The new laboratories of the Francis I. Proctor Foundation for Research in Ophthalmology were dedicated in three-day ceremonies beginning September 29, 1954.

The Proctor Foundation, established in 1947 by Mrs. Proctor in memory of her husband, is part of the University of California School of Medicine in San Francisco, and the new laboratories occupy the third floor of the recently completed Medical Sciences Building. Dr. Michael J. Hogan is director of the Foundation.

In opening the dedication ceremonies Dr. Phillips Thygeson, clinical professor of ophthalmology at the University of California, related that Dr. Proctor, after giving up his practice in Boston, devoted himself to research in trachoma among the Indians of the Southwest. He set up an experimental laboratory at Fort Apache, Arizona, and eye clinics at Taos and Santa Fe, and studied trachoma in Egypt and other countries. Mrs. Proctor took an active part in her husband's work and shared his desire to interest younger men in experimental ophthalmology.

• Emphasis on Prevention

In the annual report of the Vermont Association for the Blind Mrs. Dora S. Cannon, executive secretary, writes of the activities to conserve and restore sight.

During the 12-month period ending May 1954 the Association authorized 1,481 pairs of glasses; 79 operations; five artificial eyes; and 18 cases of medical care.

"Each year the demand for aid increases," reports Mrs. Cannon, "prin-

cipally because there are 6,920 aged people and 2,700 children receiving aid from the Department of Social Welfare. Their income is very limited, so they turn to us for assistance. . . . To many of these people, especially the older folks, a pair of glasses means a new pair of eyes. We are also taking care of a number of infants with impaired vision whose sight we are trying to preserve so they won't be totally blind. And, of course, the cataract operations we have performed this year on men, women and children have brought them back from darkness into light."

The Mecklenburg County Association for the Blind, with headquarters in Charlotte, N. C., is carrying on a prevention of blindness program. In its annual report a "service box score for 1954" shows that eye care was provided for 581 persons. The Association, which has been serving the blind and visually handicapped of Charlotte and Mecklenburg County for the past 20 years, receives substantial support from the Lions in the area.

SIXTH GRADE IN TROUBLE

National Society for the
Prevention of Blindness
New York, N. Y.

Dear Sir:

Would you please send us what material you have on the care of eyes and the prevention of blindness due to accident causes? One girl in our class was "playing" with her sister and almost got a coat hanger in her eye. Two boys got black eyes because of snow balls. One girl had her glasses chipped while playing in the yard, and another girl prefers not to wear her glasses. Our teacher suggested we write you.

Sincerely yours
Class 6-1

The Sight-Saving Review



In the Saharan village of M'Hamid a baby is examined by Dr. J. Reinhard, ophthalmologist of the Moroccan Public Health Service. He is a member of a medical team carrying out a vast anti-trachoma campaign.

UNICEF Speeds Anti-Trachoma Drives

NEARLY a million school children in Formosa are being treated in a mass campaign against trachoma under the United Nations Children's Fund. The drive began in the fall of 1954 after a pilot project revealed that half of the 1,300,000 children in schools were infected with trachoma and 25 per cent with other forms of conjunctivitis.

With the cooperation of teams from the province's health centers the drive will be completed in 18 months. The children are given a two months' treatment with an antibiotic ointment followed in stubborn cases with sulfa drugs. A health education program is part of the campaign.

Similar mass drives against trachoma are being conducted by UNICEF in Morocco, Tunisia, Yugoslavia, Egypt, and Spain. In Morocco it is hoped

that half a million people, including 100,000 children, will be reached by the middle of 1956. In Tunisia 218,000 people were treated for eye disease during 1954. The experience gained in these countries is helping the newer work in Egypt, where a pilot project is now going on. More than 70 per cent of all the blindness in that country is the result of corneal ulceration complicating acute conjunctivitis in childhood. The pilot project includes education in sanitation and an attempt to control infection carrying insects, especially *musca sorbens*, believed to be an important vector.

Trachoma is pandemic among the poorer classes in Egypt, and is almost invariably contracted in infancy from older children who as a rule have infectious stages of the disease and thus form a reservoir of infection.

AROUND THE WORLD

BERMUDA

Driver Vision Requirements — The vision test used in Bermuda for those who wish drivers' licenses is described in *The Optician* of February 25 and compared with the British test by Dr. H. F. Jackson of Bermuda, who recently moved there from England. He became interested when a patient who had been licensed to drive in England and whose visual acuity was 20/30 with glasses was refused a license in Bermuda. Dr. Jackson discovered that the latter country uses a vision test which was introduced in some parts of the United States a year or two ago and sponsored by the American Automobile Association. It investigates visual acuity, field of vision, color vision, distance judgment, and visual reaction time.

In passing or failing a candidate the examining board evaluates all results; thus a candidate with good visual acuity and field of vision may pass, even though his distance judgment is a little below normal. Not only must applicants pass this vision test before being issued a license, but they are also tested at subsequent intervals of three years.

CHINA

Blindness from Quinine—A case of quinine amblyopia reported in the *Chinese Medical Journal* last summer by Drs. S. F. Sun and L. F. Ley was noted in the *A.M.A. Journal* of Feb. 19, 1955. It concerned a 51-year-old native of

Canton, China, who had suffered from malaria for 10 years, having contracted it while working on a plantation in Indonesia. He often took quinine, and one day in 1952 took 132 pills (39.6 gm.) by mistake. A few hours later he vomited and became comatose, and within two days was totally blind. It was 23 days before he could walk; after 28 days he had light perception and his vision began to improve gradually, but only to the point where he could see large letters under a good light. After several months hospitalization in Indonesia without further progress the patient returned to China, where he came under the care of Dr. Sun and Dr. Ley. These two doctors instituted treatment with vitamin B complex and nicotinic acid, but there was no improvement in the patient's condition.

ENGLAND

Examination Standards Improved — A new requirement that applicants for blind welfare must be examined by ophthalmologists of consultant status has been made by the Ministry of Health. Blind or partially seeing applicants will now be given a differential diagnosis, a prognosis, and recommendations as to treatment in remedial cases. In the case of children under sixteen the ophthalmologist will also designate the appropriate type of school for each child examined.

Decline in Miners' Nystagmus — Better lighting conditions in English collieries

during the past few years have been accompanied by a corresponding decline in the incidence of coal miners' nystagmus, according to *The Opician* of January 14. In 1953, the last year for which figures were available, the number of cases was down to 13. As part of an effort to continue this improvement, new types of fixed electric lighting are now being tried at the coal face in three collieries. These will be extended to other collieries if the experiments prove successful.

Unfitness of Commercial Drivers — Inadequate testing of the drivers of commercial vehicles is described by Dr. Josefine Webb in the February number of the *British Medical Journal*. No medical examination is required of applicants for a license. In checking the records of 1,276 drivers Dr. Webb found that 14 per cent of them had been rejected by civilian medical boards as unfit for military service, and the same proportion had defective vision. An analysis of deaths on the road of pedestrians and cyclists over a two-year period showed that in more than half the cases the drivers of commercial vehicles were involved.

HOLLAND

Industrial Eye Injuries—At a combined meeting last year of Dutch ophthalmologists, the National Insurance Bank, the medical inspection of labor and the Dutch Society for the Prevention of Blindness, it was reported that 350,000 industrial eye accidents had occurred in Holland during 1950. According to the *A.M.A. Journal* of February 12, 1955, 70,000 of these accidents involved the eyes. Two years later 170 of the group with eye injuries were found to be permanently disabled, 106 having lost either an eye or

a lens, while 64 others had serious impairment of vision.

It was noted that the greatest number of eye accidents had occurred in the mining and metal industries. The medical adviser of the labor inspection pointed out that most of these could have been prevented by protective goggles which are available to the workers but all too seldom worn. The importance of early treatment of industrial eye injuries was also emphasized, as well as the desirability of further instructing general practitioners in the use of sulfonamides or antibiotics for serious eye cases.

ICELAND

Causes of Blindness — Iceland has a much higher rate of blindness than any other European country, the United States or Canada, according to an article by Dr. Guðmundur Björnsson, of Reykjavik, in the February *American Journal of Ophthalmology*. The leading single cause of blindness there is glaucoma.

In a special survey based on the general census of 1950 and information obtained through the Icelandic Blindness Association, Dr. Björnsson traced 434 blind persons. Since the total population is only 143,961, the rate is about 300 per 100,000 as compared with 179 per 100,000 in England, 107 in France, and 125 in Canada. (198 in the U. S. according to Hurlin. Ed.)

It is noteworthy that 89 per cent of all known blindness occurred in persons over the age of 60. The most common cause, primary simple wide-angle glaucoma, is responsible for approximately 60 per cent of the total number of cases, although it is much less frequent below the age of 70 years.

Acute glaucoma accounts for only one or two per cent of all cases of blindness.

The country has no other eye problem of any magnitude. In a fairly representative group which Dr. Björnsson was able to examine personally (about one-third of the total number), senile macular degeneration was the cause of blindness in only about six per cent of the cases. Iridocyclitis and keratitis accounted for another six per cent; senile cataract, five per cent; retinitis pigmentosa, excessive myopia, chorioretinitis and optic atrophy, each four per cent. Congenital cataract, sympathetic ophthalmia, degeneration of the cornea, amoto retinae and injuries accounted for the rest. Dr. Björnsson points out that blindness caused by syphilis, ophthalmia neonatorum, trachoma and xerophthalmia are unknown in Iceland. Retrolental fibroplasia is not even mentioned and it is noted that the rate of blindness in children under the age of four is unusually low, only five per 100,000.

The high rate of blindness due to glaucoma is generally attributed to the fact that most of the afflicted persons do not seek treatment early enough, regarding their impairment of vision as a natural corollary of advancing age. Thus any major prevention of blindness campaign must be directed at finding these cases earlier. Feeling that their past attempts to improve the situation through public information programs have been futile, health authorities in Iceland are now working on plans to start a systematic search for glaucoma cases among people over 60 years of age. Dr. Björnsson points out that it will also be important to search for cases of hereditary glaucoma, as heredity seems to be a conspicuous factor in Iceland.

LIBYA

Campaign Against Eye Disease — In Libya the second most important medical problem today is eye disease, particularly trachoma. Widespread and often fatal infant diarrhea constitutes the only health problem of greater magnitude. About 30 per cent of Libya's school children have some form of eye disease, according to the World Health Organization's *Newsletter* of January, 1955. The incidence ranges from four to 80 per cent in different areas.

The Libyan Government is doing everything it can to treat these eye conditions, with the help of doctors and nurses sent by the U. S. Foreign Operations Administration, and is working on the preventive aspect through education. A start in this direction has been made with an infant welfare campaign and a school health program. The first involves training girls and women in the proper care of infants and is making very good progress; the second, which includes the establishment of school health facilities, is proceeding more slowly due to lack of funds. In addition, voluntary organizations have set up school clinics in Tripoli and may be able to organize them in other cities eventually.

PERU

Dr. Trujillo's Visit — Plans for enlarged work in preventive ophthalmology were announced by Dr. Fortunato Trujillo of the School of Medicine in Lima, as the result of a six months' study of ophthalmologic centers in the United States. Dr. Trujillo made his survey under the joint auspices of the Government of Peru and the U. S. Foreign Operations Administration. Through arrangements made by the

National Society he visited ophthalmologic centers in New York, Boston, Philadelphia, Pittsburgh, Washington, Baltimore, and Chicago. Having organized a glaucoma service in the School of Medicine, Dr. Trujillo was particularly interested in the work being done in this country. He visited several factories to study industrial ophthalmology, which he hopes to develop in Peru in cooperation with the Inter-American Cooperative Service of Public Health.

UNION OF SOUTH AFRICA

Preventive Work Succeeds. The incidence of blindness has dropped considerably among the young natives in sections of the Transvaal, according to a report by S. K. Wentworth, director of the Bureau for Prevention of Blindness in Pretoria. During the last part of 1954 the Ophthalmic Field Unit visited centers in the Transvaal Native Reserves, and found that improved nutrition and education in hygiene were reflected in better eye health.

The unit, accompanied by ophthalmic surgeons, made rapid visits to examine large numbers of natives and operate where necessary. Most of the operations were for cataract, the chief cause of blindness in the districts visited. Trachoma was not a serious problem, though the age group under 20 suffered chiefly from this disease and from conjunctivitis and leucoma. Despite the improvement in recent years the incidence of blindness in the Ciskei area was 400 per 100,000, as compared to 97 per 100,000 among Europeans of South Africa.

Interesting contrasts between Asiatic and native groups came out in the unit's work among the Indians of

Natal. According to the register the incidence of blindness among these immigrants was not half as high as among Europeans. However, there was a great prevalence of cataract, which developed unusually early; several cases were found in the age group under 20. Strabismus was extremely frequent, as it is in India, suggesting that this condition has a racial significance. The chief eye troubles of the Indian children were strabismus, blepharitis, and conjunctivitis. The eye health of the colony was greatly aided by the hygiene lectures given in the schools.

NSBP COOPERATES

IN ARMY EDUCATION PROGRAM

Publications relating to eye health have been furnished by the National Society for the Prevention of Blindness to the Dependents Education Organization of the United States Army in France and Germany. About 30,000 American children of Department of Defense personnel attend 112 schools in these countries, which are staffed by highly qualified American teachers. A dozen high schools are included in the program.

RLF AND OXYGEN CONTROL IN MARYLAND

The Committee on Maternal and Child Welfare of the Medical and Surgical Faculty of Maryland recently issued a statement on retrolental fibroplasia with reference to oxygen administration. All hospitals in the state were strongly urged to adopt certain practices in the care of newborn infants, including the following:

"Under no circumstances shall oxygen be administered in concentrations exceeding 40 per cent.

"The actual concentration of oxygen during administration shall be checked by measurement with an oxygen analyzer at least every eight hours."

CURRENT ARTICLES

Etiology of Retrolental Fibroplasia.

W. A. Manschot. *A.M.A. Archives of Ophthalmology*. Vol. 52. p. 833. December 1954.

Report is made of an anatomical investigation carried out in Rotterdam, Holland, of 114 eyes from 59 premature infants. The first stages of retrolental fibroplasia were found in the eyes of three infants. In all three cases the lungs showed a subchronic interstitial pneumonia, corresponding to an advanced stage of interstitial plasma cell pneumonia of premature infants.

The author feels that interstitial pneumonia is an etiologic factor in the occurrence of many cases of retrolental fibroplasia, and that the epidemic incidence of interstitial plasma cell pneumonia accounts for the epidemic occurrence of retrolental fibroplasia described by many authors.

Retrolental Fibroplasia — Prevention Is the Only Answer. C. U. Letourneau. *Hospitals*. Vol. 28. p. 109. August 1954.

This general review of retrolental fibroplasia is intended primarily for hospital administrators. Emphasis is placed on the importance of administering oxygen to premature infants only when indicated, and then for as short a time as possible and in concentrations not to exceed 40 per cent.

Stating that oxygen therapy in premature nurseries has been administered too haphazardly in the past, the author supports Patz's recommendation that oxygen should be ordered by concentration rather than by rate of flow; also that accurate oxygen ana-

lyzers should be adopted as standard nursery equipment so that frequent samplings of concentrations in the incubators can be made. Trained personnel must be available to carry out physicians' orders and the oxygen equipment must be kept in top working condition.

A Field Study of Retrolental Fibroplasia in Maryland. H. I. M. Rothmund, R. V. Rider, and P. Harper. *Pediatrics*. Vol. 14. p. 455. November 1954.

A field study of prematures born in Maryland in 1952 showed that 5.5 per cent of infants with a birth weight under 2,000 grams had residual lesions of retrolental fibroplasia. This was almost four times the incidence in the only other similar report in the literature.

All babies with birth weight under 1,500 grams were seen by a staff physician who inquired about signs of impaired vision, observed the eyes for size, reaction of pupils, appearance of anterior chamber, retinal light reflexes, squint or nystagmus, and made a rough estimate of the visual fields. A questionnaire was sent to the parents of prematures whose birth weight was between 1,500 and 2,000 grams, and public health nurses assisted in obtaining information from parents when the responses were tardy or ambiguous. A staff physician visited and examined babies whose questionnaire or report from the nurse suggested any abnormality of vision.

There were 1,610 infants born in Maryland in 1952 with birth weight under 2,000 grams. Forty-four per

cent of these died before follow-up for retrolental fibroplasia was made. This left 895 survivors. Complete follow-up was obtained on 689 of these, or 77 per cent of the total who survived. The remaining 23 per cent were not followed primarily because the babies, although born in Maryland hospitals, were not residents of Maryland or because they had moved and could not be located.

Of 249 babies who were in an incubator for less than one week, only one developed the disease. It was also noted that no case of RLF was found in the group with birth weight between 1,500 and 2,000 grams, although 305 infants with these weights were followed.

The 21 children with less than Grade III retrolental fibroplasia in the better eye were considered to have some useful vision in at least one eye, whereas the 17 children with Grades III, IV or V in the better eye had a very poor visual prognosis.

The disease was two to three times more frequent in babies cared for in the five top ranking hospitals than in the other 41 hospitals, and there was a direct relationship between the proportion of infants with residual lesions and the length of incubator care.

Retrolental Fibroplasia: Current Notes. W. R. Hepner, Jr. *American Journal of Diseases of Children*. Vol. 88. p. 356. September 1954.

Retrolental fibroplasia is described as a condition of exuberant retinal vascular over-growth which manifests itself at a definite level of ocular growth and development. The acute vascular lesion of RLF may be produced by any factor which overstimulates vascular growth. Noting that

oxygen in high concentrations may be a stimulating factor, the author states that this element has been overused, both in concentration and duration of therapy, in the recent past.

Clinical Observations on the Prophylaxis of Ophthalmia Neonatorum.

I. Mann. *British Journal of Ophthalmology*. Vol. 38. p. 734. December 1954.

Because the necessity of using silver nitrate in the eyes of the newborn is being questioned in some quarters, now that penicillin has so drastically reduced the incidence of gonorrhea, an effort was made to settle the matter by clinical and bacteriological observation.

The incidence, type and course of ocular infections in the newborn was investigated in 1,148 live births at the King Edward Memorial Hospital in Perth, Western Australia. The infants were divided into two groups. The controls (569 infants) received no prophylactic treatment other than cleaning the lids with swabs dipped in normal saline. The second group (579 infants) received one drop of a one-per-cent solution of silver nitrate in each eye in addition to cleaning of the lids.

Discharge from the eyes within the first 12 days occurred in 100 of the control group and in 72 of the treated group. In the treated group the discharge appeared early. It was largely due to reaction to the silver nitrate and was sterile. Every case in both groups cleared satisfactorily but those in the treated group cleared more quickly than those in the controls. There was no severe case in either group.

The question of the sensitivity of various organisms to the more usual

antibiotics was investigated and it was found that only streptomycin gave good universal results. Penicillin and sulphadiazine gave the worst results.

The author feels that her study demonstrates the correctness of the standard teaching about silver nitrate but also indicates that its use is unnecessary in a modern hospital and in a population where gonorrhea is rare.

Testing Infants' Vision: An Apparatus for Estimating the Visual Acuity of Infants and Young Children.

B. H. Schwarting. *American Journal of Ophthalmology*. Vol. 38. p. 714. November 1954.

Estimation of the visual acuity of a child by this homemade device takes advantage of the early visual reflexes and natural curiosity of children. When in darkness, even a small baby will direct its gaze toward the sudden appearance of an illuminated field provided it is not bright and glaring. This field is obtained by a frosted-glass window incorporated in a box containing a light bulb. The light is controlled by a switch behind the box. With the infant's eyes directed toward the illuminated field, an object moving across the field will usually elicit the "following reflex."

In this case the moving objects are steel wires of various sizes in the form of small wands which are fitted on the swinging arm of a metronome. The vision is tested at one meter with the box at eye level and only a smooth, synchronous response for at least one-half cycle is taken as a positive reading. The smallest wire which can be followed by the eye is the index to the visual acuity.

The testing is done in the dark and,

as soon as a positive response for one wire is elicited, the box is turned off and room lights turned on while the wand is changed. The short exposures and variations of stopping or starting the metronome before or after the box is turned on are important in maintaining attention. If a child can not fix a light, the vision is too poor to measure with this instrument. The child should be reasonably corrected for refractive errors when testing and should not be atropinized.

These targets were calibrated as to Snellen visual acuity by testing adults with varying visions by both the Snellen chart and with this instrument. The correlation was found to be so consistent that the Snellen acuity could be predicted with this device.

The Psychologic Approach to Children's Eye Problems.

E. Krinsky. *Postgraduate Medicine*. Vol. 15. p. 459. May 1954.

The role of the eye as an external manifestation of possible disturbed psychologic responses in children is discussed, and the importance of respecting the underlying adjustment problem is emphasized.

Treatment of a psychologic disorder in a child resolves itself primarily into an awareness of a psychological factor for which the parent or some outsider may be responsible. Parents often sow the seeds of imaginary and hysteric eye ailments by creating unnecessary issues about their children's eyes. For that reason the doctor should never alarm a parent in front of the child; in fact, the latter should not even be present when his problem is discussed.

Psychologic problems in children may also be the result of environmental shock emanating from a doc-

tor, teacher, relative, neighbor, or another child. In such instances transfer of attention to other more wholesome interests should be undertaken by the parents and the issue should not be exaggerated in the child's presence.

The Importance of Early Treatment of Squint in Childhood. C. A. Turtz. *Medical Times*. Vol. 82. p. 604. September 1954.

The practice of waiting for a child to "outgrow" a squint is condemned; early treatment is urgently recommended for any eye that turns in or out. Even if a turned eye does "straighten" naturally with the passing of time it is likely that there will be great impairment or even loss of vision, whereas early and competent treatment will save vision. No infant is too young for such treatment. Although good results are often achieved with older children the best prognosis is for those treated before age four.

Visual Development and Glasses for Children. John P. Wendland. *Exceptional Children*. Vol. 21, p. 253. April 1955.

Visual problems which a school nurse needs to understand are discussed. Binocular vision and visual acuity of 20/20 are reached between the ages of four and seven, and the child develops visual patterns which resemble conditioned reflexes. Various impediments such as strabismus establish abnormal patterns difficult or impossible to correct.

The child of eight or nine who has surgery for congenital cataracts will probably never develop 20/20 vision, but an operation much earlier may allow him to learn habits of normal vision. Monocular strabismus or a high refractive error in one eye will re-

sult in amblyopia ex anopsia in that eye, unless an early correction is made.

Children with anisometropia and amblyopia in the "poor" eye often rebel at wearing glasses designed to balance the vision, since they are in the habit of letting the good eye do all the work. Some of them will never adjust to wearing glasses, and the treatment may have to be abandoned.

When high astigmatism or high hyperopia is present in both eyes it is important to start children wearing glasses early. Since they enjoy the marked improvement in vision which both eyes experience they seldom object to wearing glasses after the first few weeks.

Children who need glasses rarely complain about their eyes or show symptoms common to adults, such as headaches. Only refraction can determine when glasses are needed, and low refractive errors are better left uncorrected. Whether a child needs to wear glasses all or part of the time depends on the individual diagnosis.

Frequency of Retinoblastoma in the Progeny of Parents Who Have Survived the Disease. A. B. Reese. *A.M.A. Archives of Ophthalmology*. Vol. 52. p. 815. December 1954.

This report by Dr. Reese dealing with follow-up studies in cases of retinoblastoma seeks to answer the question: is it advisable for adult survivors of retinoblastoma to have children?

The report covers 30 children whose father or mother had confirmed retinoblastoma. Twenty-three of the children, or 77 per cent, had the tumor. Of the 15 families involved there was only one in which all the children,

three in number, were free of the condition. These findings support the author's earlier conclusion that survivors of retinoblastoma should not have children.

What the Family Doctor Should Know About Cataract. D. B. Kirby and E. P. Danforth. *GP* (Journal of the American Academy of General Practice). Vol. 10. p. 57. October 1954.

It is important for general practitioners to know basic facts about cataracts since they may then detect this condition in their patients at an early stage. They may also have known cases referred to them by ophthalmologists for a recheck on the general physical condition, to help in determining the etiology of the cataract. The progress of the cataract may be retarded or even arrested if the causative factor can be found and corrected. The examination should be thorough; laboratory tests should include, as a minimum, complete blood count, sedimentation rate, Wasserman, repeated urine analysis, fasting blood sugar, chest and sinus x-rays.

Among other indications for cataract extraction the authors include the need for prevention of complications such as glaucoma and uveitis, which may be produced by the toxic bodies coming from an overripe cataract. Great difficulties may be averted by removal of a hypermature or subluxated cataract before further loosening of the zonule permits complete dislocation.

The principal contraindications are very poor general condition of the patient; active uveitis; increased intraocular pressure (in cases of uncompensated glaucoma the extraction of the cataract must be delayed until

control of the pressure is established); retinal or nerve function so poor that there would be no improvement in vision; central corneal opacities (corneal transplant should be done first); and useful vision in the other eye (except under special conditions of damage to the eye by toxic products of the cataract and by dislocation).

Results of cataract surgery are usually excellent. In uncomplicated cases there is not more than two to five per cent of failures, though local and general disease may bring three or more per cent additional failures in complicated cases.

Glaucoma and Amblyopia Ex Anopsia, Two Preventable Forms of Blindness. T. Gundersen. *Journal of the American Medical Association*. Vol. 156. p. 933. November 6, 1954.

Chronic glaucoma and amblyopia ex anopsia are called by the author the two greatest causes of blindness in the United States. Since the problem is primarily one of detection, both of these conditions are preventable to a large degree.

There is no substitute for tonometry in early detection of glaucoma; digital palpation is undependable and inaccurate. The author recommends teaching tonometry to every medical student and making it a part of every general physical examination for patients over the age of 40. He also advocates mass screening programs, possibly adding free tonometric examinations to the free chest x-ray programs now conducted by various health agencies.

Of comparable importance are visual acuity determinations for early detection of amblyopia ex anopsia. Since this condition frequently accom-

panies strabismus, any child with strabismus should be referred to an eye specialist immediately. There is another group of children in whom no visible evidence of strabismus exists, however. Unocular blindness may be equally intense in children with refractive amblyopias, in those whose convergence is so slight as to escape notice, or in those with no deviation of the visual axes whatever. The only hope of combatting unocular blindness in this group is by testing the visual acuity of all children at the earliest possible moment. These determinations can be done on any normal child by the time he reaches his third birthday and it is strongly recommended that they be started at that age.

Tonographic Measurements in Enucleated Eyes. W. M. Grant and R. R. Trotter. *A.M.A. Archives of Ophthalmology*. Vol. 53. p. 191. February 1955.

The purpose of this investigation was to examine the relationship of intraocular pressure, volume of the eye, and rate of outflow of the aqueous humor by direct methods and to evaluate these factors as they bear on the indirect methods of clinical tonography. The experiments were performed upon enucleated eyes supplied by the Boston Eye Bank and on eyes of living animals. The methods which were developed for measuring pressure in these eyes and for determination of scleral rigidity and facility of aqueous outflow are described and the following conclusions reported:

In enucleated normal human eyes the scleral rigidity some hours after death is less than has been estimated by Friedenwald for normal eyes in patients. However, explanation for this difference and support for Frieden-

wald's estimate are provided by measurements on rabbits which show the scleral rigidity to decrease spontaneously during the first hour or two after death.

The average normal facility of outflow from enucleated human eyes determined by cannulation is only a little greater than the average normal facility of outflow found clinically by tonography (0.27, as compared with 0.233). The principal significance which has been attached to this comparison is that most of the resistance to outflow normally present in vivo appears to persist after enucleation. This suggests that a stable structure, rather than some function of the general circulatory system or nervous system, is responsible for the resistance. This finding is thought to constitute a step toward evaluation of the factors responsible for resistance to outflow in normal and glaucomatous eyes.

Diurnal Tonographic Variations and Their Relation to Visible Aqueous Outflow. J. Stepanik. *American Journal of Ophthalmology*. Vol. 38. p. 629. November 1954.

Six tonographies were performed within a 24-hour period in each of 30 eyes—16 with glaucoma, seven with suspected glaucoma, and seven normal. On the average, resistance to outflow was found to be higher in glaucomatous eyes than in normal or suspected eyes. In chronic simple glaucoma resistance was near the borderline, but showed pathological increase at the times of the peaks of the pressure curve and normal values when the diurnal pressure curve was near its minimum. It was felt, therefore, that single tonographies cannot exclude chronic simple glaucoma. Thus

it is advisable to make a diurnal pressure curve first and perform the tonographies at those times which show peaks of the pressure curve.

Reading Test in Glaucoma. A. Higgitt and R. Smith. *British Journal of Ophthalmology*. Vol. 39. p. 103. February 1955.

Two patients seen at the London Institute of Ophthalmology, both of whom suffered from an unusual form of congestive glaucoma, are described. The precipitating factor was any accommodative effort such as reading or sewing, the tension being reduced to normal levels by mydriatic drugs. Miotics also controlled the tension in one patient but had no beneficial effect upon the other. Increase of tension was associated with closure of the angle of the anterior chamber.

The conclusion is drawn that during accommodation a rotation of the ciliary body occurred about the scleral spur, and that this caused apposition of the root of the iris to the corneoscleral trabeculae.

Concussion Glaucoma. W. Ingman. *British Journal of Ophthalmology*. Vol. 38. p. 747. December 1954.

Two cases of concussion glaucoma are reported, both resulting from a blow to the eye by an arrow, and both with total hyphaema. In the first case glaucoma appeared on the third day. It was also assumed to have begun on the third day in the other, judging by the history, although the patient was not seen until eight days after the accident. In both the cause of glaucoma was intraocular hemorrhage. In the first case the eye had to be excised 10 months after the accident; in the second the eye appeared completely

cured four weeks after the accident. At that time the tension was normal; visual acuity was 6/12; the vitreous was clearing in the upper half and the fundus appeared normal in that area.

The author attributes the differences in outcome to the fact that a miotic was used in the successful case while a mydriatic was used in the other. He feels that although the evidence is inconclusive, these two cases indicate that miosis may be more useful than mydriasis in the treatment of concussion glaucoma.

Modern Approach to Glaucoma. K. L. Roper. *American Journal of Ophthalmology*. Vol. 39. p. 312. March 1955.

A most important phase of any glaucoma program is the alerting of practitioners in all branches of medicine to the symptoms of the disease. Emphasizing that the responsibility for the detection of glaucoma cannot be left to the eye specialist alone, since these specialists are often consulted too late, the author recommends that tonometry be taught in all medical schools and that it should be made a routine part of every general physical examination.

The Basis of Tonometry. A. Posner. *The Eye, Ear, Nose & Throat Monthly*. Vol. 34. p. 121. February 1955.

The recent publication by the American Academy of Ophthalmology and Otolaryngology of the "Decennial Report" of the Committee on Standardization of Tonometers is described as a milestone in the progress of ophthalmology. Because of the importance of this report, and to facilitate understanding of some of the technical matter contained therein, Dr. Posner

presents a review of the whole subject of tonometry.

It is noted that tables of paired readings have been prepared for use in estimating whether the rigidity of the eye in question is average, less than average, or greater than average, and these appear in the "Decennial Report." Dr. Posner cautions, however, that in the clinical use of these tables it must be borne in mind that relatively minor mechanical or personal errors in tonometry can lead to widely divergent estimations of ocular rigidity. Hence it is important to take repeated tension readings and not to place too much stress on a single determination. Neither should these rigidity tables lead one to underestimate the significance of a definitely increased tension, i.e., any reading of 40 mm. of mercury or over.

Management of Open-Angle Glaucoma. W. S. Knighton. *New York State Journal of Medicine*. Vol. 54, p. 3096. November 15, 1954.

In discussing methods of diagnosis and subsequent management of this disease, Dr. Knighton emphasizes that the field loss which occurs may be called the crux of the whole situation. Unless this loss can be prevented the glaucoma cannot be considered under control, even though the tension is brought down to a low level. Careful, repeated field studies are therefore important and essential to a knowledge of the efficacy of treatment.

Since the only known way of managing the glaucoma appears to be in the control of tension and its mediator, the facility of aqueous outflow, the tension behavior must be understood and appropriate measures applied to each patient. Dr. Knighton emphasizes

that management of open-angle glaucoma is designed to maintain the integrity of the eye by medical means as long as possible and may be considered satisfactory as long as there is no progressive field loss, even though the tension is slightly increased. When the field loss continues and tension remains high, medical therapy has failed and surgery is indicated; but when the tension is low, even with continued field loss, surgery will not help.

Discussion: Dr. Everet H. Wood. In his discussion Dr. Wood comments that general resumés such as Dr. Knighton's are of inestimable value to the clinician who has to manage these cases. This is particularly true of small-city practitioners who may find it difficult to keep abreast of new developments and to choose from the multiplicity of ideas presented. Dr. Wood also stresses the importance of considering the patient as a whole, saying that unresolved anxieties are often very dangerous companions to a developing glaucoma; thus some effort on the part of the ophthalmologist to remove such anxieties can be important in the management of glaucoma.

Inhibition of Sugar Metabolism in the Lens. J. Nordmann, P. Mandel and M. Achard. *British Journal of Ophthalmology*. Vol. 38, p. 673. November 1954.

Of the various theories advanced to explain the pathogenesis of cataract, the one which the authors believe has withstood the test of time most satisfactorily is that which ascribes the opacification to a defect in the carbohydrate metabolism of the lens. In earlier experiments aimed at proving this theory Nordmann and Dillsch-

neider interrupted the sugar metabolism in the lens by glyceraldehyde and observed the formation of opacification in the lens, associated with a fall in the production of lactic acid and in the accumulation of energy-rich compounds (adenosine triphosphate). The present authors have followed up these experiments using a series of inhibitors—mono-iodoacetic acid, sodium fluoride, phloridzine, sodium malonate, and fluoro-acetic acid. They give the results of these experiments, combined with those obtained by Nordmann and Dillschneider, and the following conclusions are drawn:

A blockage of the breakdown of sugars is always followed by cataract. The first four substances used acted at different phases of the anaerobic cycle, while sodium malonate and fluoro-acetic acid acted on the aerobic phase. Although their site of action is different, all these substances produced marked opacification of the lens. The cataract appeared most quickly when the block affected the enzymes at the commencement of the cycle; less quickly with the agents which disturbed the citric cycle. The positive results of these experiments indicate that the breakdown of glucose in the lens is similar to the process in other organs.

Topical Cortisone in the Treatment of Syphilitic Interstitial Keratitis: Preliminary Report of 20 Cases (26 Eyes). G. O. Horne. *British Journal of Ophthalmology*. Vol. 38, p. 669. November 1954.

Because conflicting reports have been published on the treatment of syphilitic interstitial keratitis with topical cortisone, the author describes briefly a series of 20 cases, involving

26 eyes, which he hopes will dispel any doubts about the value of cortisone in this condition and establish it as an imperative method of treatment.

The author states that when adequate dosage of the hormone was used and the cases were well managed, excellent immediate and long-term results were always obtained. In the whole series, judged by the ultimate visual acuity (measured at periods ranging from six to 39 months after the start of treatment), the results were much superior to those reported as the results of other methods of treatment.

Use of P^{32} as an Aid in Diagnosis of Intraocular Neoplasms: Further Observations. I. J. Eisenberg, I. S. Terner and I. H. Leopold. *A.M.A. Archives of Ophthalmology*. Vol. 52, p. 741. November 1954.

The authors used radioactive phosphorus for the detection of intraocular neoplasms, injecting 500 μ c of P^{32} intravenously. One hour and again 24 hours later counts were taken at the limbus of the normal eye in positions 12, 3, 6 and 9 o'clock, with a Geiger counter placed as close to the lesion as possible in the pathologic eye. These counts were recorded as the number per minute. After using this procedure in 123 cases with intraocular pathology the following conclusions were drawn:

The test is limited in its use to subjects with one eye or with bilateral ocular pathology, lesions in the posterior segment of the globe, and tumors in the less active metabolic state. The P^{32} test is positive for a malignant lesion if in one hour the uptake is 30 per cent or more greater than the average in the normal eye, and the

24-hour uptake shows a percentage increase greater than the one-hour uptake.

A negative test indicated a non-malignant lesion in approximately 95 per cent of the cases studied. The test, however, was decidedly reduced in accuracy in dealing with retinoblastomas in children. A positive test was strongly suggestive of a malignant neoplasm in all the eyes studied.

Degenerations of the Dog Retina.
VI. Central Progressive Atrophy with Pigment Epithelial Dystrophy.
H. B. Parry *British Journal of Ophthalmology*. Vol. 38, p. 653. November 1954.

A series of 15 cases of progressive degeneration of the dog retina with pigment epithelial dystrophy is described. Ten of the cases were examined pathologically. The following observations are made:

Affected dogs develop a central scotoma by early or middle adult life while retaining normal peripheral vision by day and night, often for years. The retinal degeneration begins over the tapetal and dorsal non-tapetal fundus; hypertrophy of the pigment epithelium is followed by atrophy of the rods and cones and the outer nuclear layer, and sclerosis of the central retina. Multicellular "nests" of pigment epithelial cells occur; they may be seen in the tapetal fundus with the ophthalmoscope. The electroretinogram remains normal until the later stages of the disease, when first the negative wave and then the *b*-wave are lost. Two types of the syndrome are recognized: Type A, familial, in retrievers and border collies, possibly due to an inherited abiotrophy; Type B, sporadic, of uncertain etiology.

The pathogenesis of the degenera-

tion and the possible role of disturbances of the blood supply in its causation are discussed, and the similarity of the disease to human retinitis pigmentosa considered.

The Contamination of Fluorescein Solutions: With Special Reference to *Pseudomonas Aeruginosa* (*Bacillus Pyocyaneus*). D. G. Vaughn, Jr. *American Journal of Ophthalmology*. Vol. 39, p. 55. January 1955.

The maintenance of sterility in ophthalmic solutions has always been a major objective of the ophthalmologist. Fluorescein solution is of particular importance in this regard by virtue of its ability to support the growth of *Pseudomonas aeruginosa* and its wide use as a diagnostic aid in the management of ocular injuries. Because corneal infection with *Ps. aeruginosa* is more common than indicated by the sporadic reports in the literature and is usually induced by the use of contaminated drops in an injured eye, a study was done to determine the extent of contamination of solutions.

Cultures were made of 50 samples of fluorescein solution obtained from ophthalmologists' offices, eye clinics, pharmacies, hospital emergency rooms, and industrial dispensaries in the San Francisco Bay area. Twenty-seven, or 54 per cent, were found to be contaminated, for the most part with gram-negative rods. *Ps. aeruginosa* was recovered from 12 per cent of the entire series and from 22 per cent of the contaminated bottles.

After tests with three commonly used antiseptics (phenyl mercuric nitrate, zephiran and chlorbutanol) it was concluded that there is no suitable preservative for fluorescein solutions. Kimura fluorescein papers are there-

fore recommended as the safest source of fluorescein for staining the cornea. Those who prefer to use the solutions should autoclave them daily. Since *Ps. aeruginosa* is carried on the hands and resists ordinary soap, it is further recommended that doctors and nurses treating eye patients use bactericidal soaps or detergents routinely.

It is noted that *Ps. aeruginosa* may also be a contaminant of other commonly used eye solutions, including the sulfonamides, penicillin, and the silver proteinates, as well as all of the alkaloids.

Treatment of Trachoma with Erythromycin: A Preliminary Report of 21 Cases. R. R. Button. *American Journal of Ophthalmology*. Vol. 39. p. 223. February 1955.

The efficacy of Erythromycin in the treatment of 21 trachoma cases is reported. The patients were all Navajo Indian children, ten of whom had already received oral and local sulfonamide therapy without any improvement in their condition. The others had had no previous treatment. There were four cases of Stage I trachoma, seven of Stage II and ten of Stage III.

All 21 children were given Erythromycin orally in doses of two to three mg. per pound of body weight at four-to-six hour intervals. No local medication was used. Without exception the cases returned to normal cytology within a matter of days. The Stage I cases required an average of four days' treatment before returning to normal, Stage II averaged 4.9 days, and Stage III averaged 5.7 days. During an eight-month follow-up period none of these cases recurred. During the same period four additional Stage III cases were treated with Erythromycin and

these also returned to normal cytology within a week.

The author feels that, although the number of cases was too small to be conclusive, Erythromycin appears to be effective in treatment of Stage I, Stage II and Stage III trachoma. At least 12 days of therapy are recommended, however, since there were recurrences when therapy was discontinued before this time.

Uses and Abuses of Adrenal Steroids and Corticotropin. M. J. Hogan, P. Thygeson, and S. Kimura. *A.M.A. Archives of Ophthalmology*. Vol. 53. p. 165. February 1955.

After a general review of the principal physiologic effects of cortisone, hydrocortisone and corticotropin, results are given of treatment with topically administered cortisone and hydrocortisone drops or subconjunctival injections in 989 cases and with systemic medication in 90 cases.

The therapeutic effect of hydrocortisone was found to be superior in the following conditions: contact dermatitis of the lids; vernal conjunctivitis; sclerosing keratitis; superficial punctate keratitis; recurrent corneal erosions; and diffuse episcleritis. Most other lid and anterior segment diseases responded equally well to either cortisone or hydrocortisone. No difference in effect could be detected between the cortisone acetate and the hydrocortisone acetate suspensions. Hydrocortisone free alcohol seemed to be as effective as the acetate form.

The authors note that an increased incidence of dendritic ulcers was found in patients treated for other conditions with local steroids. They warn against the overuse of topical adrenocorticosteroid therapy, saying that an in-

creased incidence of acute disciform keratitis with necrosis, ulceration and perforation, has been observed since the advent of this therapy. Results in five cases are reported.

The authors caution that oral and parenteral therapy with cortisone, hydrocortisone and corticotropin should be reserved for acute chorioretinal inflammations adjacent to a vital area in the retina near the macula, papillomacular bundle, or disc. Unfavorable results were observed in cases of retrobulbar neuritis, chronic iridocyclitis and chorioretinitis, orbital pseudotumor, and progressive exophthalmos.

The Present Status of Epidemic Keratoconjunctivitis. T. A. Cockburn. *American Journal of Ophthalmology*. Vol. 38, p. 476. October 1954.

A critical review of present-day knowledge of epidemic keratoconjunctivitis is presented because, after some years of obscurity, this disease is again becoming prominent. When the problem was discussed with ophthalmologists scattered throughout the country almost all of them knew of recent epidemics in their areas, confirming the opinion that this is a major problem in the United States. The disease apparently is spread by people living in intimate contact with one another, or may even be transmitted from patient to patient by the ophthalmologists themselves. At times it becomes epidemic in industrial plants, where a large proportion of the cases occur in workers who have suffered minor eye injuries. Despite the fact that this is a reportable disease in 22 states, there are relatively few cases on record. This apparently is due to faulty diagnosis or lack of reporting.

Since doubt has been cast on exist-

ing strains of the epidemic keratoconjunctivitis virus, little more is known about this disease now than a decade ago when it first became a problem in the United States; the only real progress has been in recognizing that it may be spread by ophthalmologists themselves. A study aimed at clarification on a national basis is needed.

Prevention of Blindness in Middle and Old Age. J. Minton. *Nursing Times*. July 10, 1954.

The fact that the supply of cortisone in England is very low is noted in this review of the principal causes and means of prevention of blindness. Emphasizing the importance of cortisone in treatment of iritis and iridocyclitis, chemical eye injuries, corneal lesions, herpes zoster ophthalmicus, and various forms of keratitis, Mr. Minton urges the Ministry of Health to supply larger amounts of this drug for the use of ophthalmologists in general hospitals and eye hospitals throughout the country.

Senile Macular Degeneration: Common Cause of Defective Sight in the Elderly. A. J. Bedell. *Journal of the American Geriatric Society*. Vol. 2, p. 193. March 1954.

In cases of senile macular degeneration, the patient first notices that any near use of the eyes, such as reading or writing, has become more difficult and that a change of glasses does not help. The only other early symptom is a dark spot before the eye or eyes, which gradually increases in size. One eye is often involved weeks or even months before the other, a time difference which is important in the diagnosis. Whenever a patient over the age of 50 has a prolonged obscuration of

vision that interferes with close work, is not caused by cataract, glaucoma or any other obvious disease, and cannot be corrected with glasses senile macular degeneration should be suspected.

There are two forms of this condition, exudative and sclerosing; loss of vision occurs in both. After the sight is once reduced it cannot be restored since no cure is known. Eyes are sometimes removed unnecessarily because the nature of senile macular degeneration is not appreciated by the ophthalmologist. These unwarranted enucleations may be avoided by taking fundus pictures at two week intervals to rule out the possibility of a malignant growth.

Grass Roots in the Prevention of Blindness. A. H. Keeney. *Mississippi Valley Medical Journal*. Vol. 76. January 1954.

The author feels that the greatest responsibility for prevention of blindness lies in the grass roots, in the hands of neighborhood and family practitioners. It includes giving advice to families with hereditary conditions which may be transmitted to the next generation.

The importance of immediate treatment of chemical burns is emphasized, the treatment being the same regardless of the chemical involved: copious irrigation with the most quickly available source of water. Whether this is tap water or physiologic saline makes no difference, but minutes or seconds in delaying irrigation may mean the difference between vision and blindness.

Mechanical trauma to the globe is always serious although no more than a contusion or "black eye." Alterations in intraocular pressure commonly follow contusions, and acute glaucoma

may be confused with the soreness and congestion of local trauma. Even minor contusions which do not produce the "black-eye" reaction may ultimately be fatal to sight. No ocular contusion or traumatic hemorrhage about the eye should be dismissed without satisfactory examination of the interior of the eye.

The importance of early treatment of squint is emphasized. The cause may be no more than a need for glasses, but it may also be a blinding or killing tumor. Most commonly it is a neuro-ophthalmological problem of some complexity. Any individual with a deviating eye should, therefore, have a thorough ophthalmic examination as soon as the deviation appears.

The danger of relying on non-surgical fads for treatment of cataract is noted and the point is stressed that surgery is the only known cure for this condition. Not all of the fads are directly harmful, but misplaced confidence in such quackery may lead to blindness from pathology other than or in association with cataract.

Emphasis is placed on the responsibility of the physician for explaining certain incurable hereditary eye conditions to the families which carry them, and for seeing that carrier members of these families understand their own role in preventing blindness. Thus when buphthalmos has struck once, the parents should be advised of the great likelihood of this affliction in subsequent children. Twenty-seven states now have voluntary eugenic laws under which the state or county pays for sterilization procedures for individuals with certain hereditary diseases if the petition is approved by an official state board, but in most cases only patients with psychoses,

mental deficiency or epilepsy are eligible. The author feels that voluntary codes should be developed in other states, and their scope broadened to cover hereditary blindness.

Ophthalmologic Problems in Tuberculous Patients. W. J. Marshall. *Missouri Medicine*. Vol. 51. p. 901. November 1954.

The author, consulting ophthalmologist at the Missouri State Tubercular Sanatorium, discusses several conditions which he feels are peculiar to tuberculous patients.

Prevalence of optic atrophy as a complication of tuberculous meningitis, particularly in children, is emphasized. The theory is advanced that extension of the meningitis in the optic nerve sheath continues directly through the pia into the nerve itself, causing permanent damage to the nerve fibers.

A case of proliferative retinopathy is presented as an example of several such cases seen at the sanatorium, with the suggestion that a proliferative retinopathy is more common in tuberculous patients than in other patients with retinopathies.

The author notes that few active cases of uveitis have been found among the sanatorium patients.

Color Blind? I. Onken and L. L. Weaver. *The Journal of School Health*. Vol. 24. p. 184. September 1954.

A testing program was conducted in Denver, Colorado's Skinner Junior High School in an attempt to locate all cases of color deficiency. A total of 1,209 students were shown a series of seven slides reproduced from the plates originated by Dr. Shinohu Ishihara. Of the 1,209 students, 32 boys and six girls showed a total degree of color

deficiency and one boy showed a partial degree of red-green deficiency. Fifteen of the 32 with total color deficiency wore glasses and three of the 15 were in sight conservation classes. The one student with red-green deficiency did not wear glasses.

One boy's color vision may have been complicated by diabetes, but the other students gave no history of any deficiency disease. Nine boys and three girls gave family histories which indicated that the condition was hereditary. Only two of the 39 realized that they were color defective, while families of three others only suspected the defect.

The color deficient students at Skinner represented 2.72 per cent of the boys tested; 0.49 per cent of the girls.

Fatty Corneal Dystrophy. G. Cristini. *Rass. Ital. D'Ottol.* Vol. 23. Nos. 3-4. p. 110. March-April, 1954.

Cristini reports a case of bilateral corneal dystrophy developing in a 48-year-old man. The diagnosis depended upon the biomicroscopic corneal appearance, of its peripheral annular form, its progressiveness and the absence of subjective symptoms developing in uninjured eyes. Non-penetrating and, later, total keratoplasty were performed, but were soon followed by continued loss of vision. The author considers that the histopathology gives a clue to the diagnosis. These findings were lympho-plasmocell and eosinophile cells with an infiltrating lipid degeneration. These changes would make the corneal disease a mono-symptomatic form of Hand-Schueller-Christian disease.

EUGENE M. BLAKE

BOOKS AND PAMPHLETS

Your Health Today. W. W. Bauer, M.D.
Harper and Brothers, New York.
1955. 514 p. \$5.00.

Dr. Bauer aims in this comprehensive text to correct some of the misunderstanding and misinterpretation of the subject of health. There is a general impression, he points out, that everyone is interested in his own health. Yet college courses in healthful living, unless compulsory, are customarily shunned except by those who have a related professional interest. Possibly the presentation of health materials has often been dull, uninspired, impractical and devoid of appeal.

Certainly *Your Health Today* does not fall in this category. The material is well organized, the style crisp and lively, the illustrations clear and effective. The general reader and the student will find in the book a wealth of information relating to personal health problems as well as many guides to good living.

A chapter headed "Windows on Life" describes in simple terms how we see; visual defects and their causes; conditions that require glasses; and common eye diseases. It also deals plainly with popular misconceptions about eyes—fads, fallacies and fakery. For example:

"The most dangerous fallacy with relation to the eyes is the Bates system of eye exercises, coupled with advice to throw away your glasses. This system in brief calls for applying the palms of the hands over the eyes in a motion which Bates calls 'palming,' and exercising the eyes by moving them from side to side. He has also advised the extremely dangerous prac-

tice of looking straight into the sun. . . . Such a system can do no possible good, and is capable of great harm.

"If confidence is placed in the Bates system, refractive errors which are the real cause of impaired vision will remain uncorrected, or glasses which are badly needed will be discarded. The nonsense ritual which constitutes the system may be relied on when there is genuine and sometimes desperate need for medical treatment. In the case of eye tumors, glaucoma, kidney disease, diabetes, brain tumor or detached retina, the seemingly 'harmless' exercises may delay treatment until sight is destroyed. Or even until life is lost."

Dr. Bauer, who is director of the Bureau of Health Education of the American Medical Association, emphasizes that good health in its broadest sense is possible even for those with physical handicaps: "Learning to live, and to live well, with the fund of health at our disposal . . . is the highest concept of good health."

Clinical Refraction. Second Edition. Irving M. Borish, O.D., D.O.S. Professional Press, Inc., Chicago. 1954. 576 p. \$9.00.

In preparing this second edition the author has brought into context new material published since 1949, increasing text and illustrations by approximately one-third. Various sections deal with the preliminary examination, refraction, analysis and prescription, and monocularly.

There is an interesting discussion of the various factors which influence the refractive status of the eye, and the author recognizes the statistical misin-

terpretation of the correlation of increase in myopia with increased school work. After a review of many opinions and theories and after pointing out that the distribution of myopia among people in cultures demanding little close work varies little from that among so-called civilized peoples, he suggests that myopes may have some inherent weakness in the sclera, whether due to heredity or metabolic factors, permitting an increase in the relative axial length beyond normal.

The text is concerned essentially with phases of a practical and clinical nature. It is assumed that the reader has a background in basic prerequisites of physiologic optics.

Embryology of the Human Eye. Aeleta Nichols Barber, Ph.D. C. V. Mosby Company, St. Louis. 1955. 240 p. \$8.75.

Beautifully illustrated with original photomicrographs, this book analyzes "the mysterious pattern of life as it weaves time and tissue in a limited portion of the body to yield one of the most marvellous phenomena in existence—the organ of sight."

Dr. Barber, associate professor of pathology at Louisiana State University School of Medicine, presents the development of the human eye not as a series of sharply marked-off stages but as a fast-moving story of numerous events with emphasis on their concomitant sequence and significance. Embryogenesis, organogenesis and differentiation of the various parts of the eye are presented. A section on post-partum development deals with prematurity, emphasizing that the sudden change in the environment of the fetus places a functional strain upon the intraocular system.

"Atrophy and absorption of the elements of the hyaloid vascular system continue in the eyes of premature babies after birth, but the process is precocious and proceeds more rapidly than it does in utero. Also the growth of the retinal arteries continues, but it too is accelerated in harmony with the retrogression of the fetal blood vessels. Undoubtedly since both of these processes, growth and atrophy, proceed under strained conditions, the chances are great that they will become abnormal if any additional stress is put upon them."

The author states that prematurity itself is not an insurmountable obstacle to normal completion of the developmental processes. They may become slightly accelerated but with proper care, adjustment to the new environment can be made and the eye develops normally. A thorough knowledge of the processes going on at time of birth is important in the care and management of these infants.

Although this text is designed primarily for students and ophthalmologists other biologists will find it a valuable source of material.

Year Book of Eye, Ear, Nose & Throat. 1954-1955 Series. Edited by Derrick Vail, M.D., and John R. Lindsay, M.D. The Year Book Publishers, Chicago. 464 p. \$6.00.

This text, one of the 13 comprising the Practical Medicine Series of Year Books, includes articles abstracted from journals received during the year 1954. In the section on *The Eye* edited by Dr. Vail the abstracts and editorial comments appear under the headings: orbit and adnexa, conjunctiva and cornea, uvea, refraction and motility,

lens and cataract, neurology and visual fields, retina, glaucoma, surgery and therapy.

Dr. Lindsay is the editor of the second half of the book dealing with *The Ear and The Nose and Throat*.

This series is designed to keep physicians informed of significant world-wide advances in their respective fields.

An Introduction to the Principles of Color Deficiency. Dean Farnsworth, CDR, MSC, USNR. Reprint No. 254. Medical Research Laboratory, U. S. Naval Submarine Base, New London, Conn. 1954. 18 p.

What the Color Defective Person Sees. An adjustable ISO-Color Diagram (a section of the above report) explaining facts of color defectiveness. *Diagram only* available from Munsell Color Company, Baltimore, Md. Price \$2.00. In quantities of 5-9, \$1.00 each; 10 or more, 65 cents each.

This report is a simplified introduction to the principles of color defectiveness, with an accompanying diagram. The diagram should be most helpful for teaching professional persons including nurses, social workers and teachers about color.

Parsons' Diseases of the Eye. 12th Edition. Sir Stewart Duke-Elder. The Macmillan Company, New York. 1954. 608 p. \$8.00.

A thorough revision of this standard text has been undertaken, with a considerable rearrangement of the material. In view of the many advances in knowledge of the etiology and pathology of ocular disease large sections of the book have been rewritten, particularly those dealing with virus diseases, etiology of uveitis, the retino-

pathies, glaucoma, and the ocular manifestations of general disease.

A brief discussion of retrolental fibroplasia is included but this does not refer to the recent studies that have shown oxygen toxicity to be associated with the disease.

The greatest innovations are seen in the field of therapeutics. A new chapter deals with antibiotic drugs and hormones in the treatment of ocular infections.

In a section on preventive ophthalmology, the causes of blindness in England and Wales and various problems in prevention are outlined.

Current Concepts of Diabetes Mellitus. With Special Reference to Ocular Changes. L. Benjamin Sheppard, M.D. Charles C. Thomas, Springfield, Illinois. 1954. 92 p. \$3.75.

The complications of diabetes may appear first in the eye, particularly in the retina. In this study clinical and experimental observations as they concern the disease are reviewed in relation to eye pathology. Suggestions are presented primarily to aid the ophthalmologist in the evaluation of the fundus and secondarily to inform both the patient and the internist.

Among the eye conditions observed in diabetes are: wrinkling of Descemet's membrane, paresis of accommodation, retinopathy, cataract, disorders of the iris, changes in refraction, glaucoma and optic neuritis. Dr. Sheppard points out that there are two schools of thought as to whether control of hyperglycemia influences the development of diabetic retinopathy. After an extended discussion of the natural history of diabetes and its complications, he recognizes that duration of the disease is important and agrees

with those who feel that constant, good control of the diabetes retards the development of retinopathy and other diabetic vascular changes.

The Health of Regionville. Earl Lomon Koos. Columbia University Press, New York. 1954. 178 p. \$3.25.

Five hundred families in an "average" town in the hill country of New York State were visited at intervals in an effort to learn their health habits, attitudes toward health and illness, relationships to sources of medical care and their use of community health agencies.

Dr. Koos, who is professor of social welfare at Florida State University, reports the results of this four-year study. He concludes that ignorance about disease symptoms, use of the hospital and other aspects of health care, particularly among unskilled workers, are real obstacles to providing adequate health attention. He emphasizes the necessity of including health education wherever adult education, in its broadest sense, goes on.

Health Supervision of Young Children. A guide for practicing physicians and child health conference personnel. American Public Health Association, New York. 1955. 180 p. \$2.00.

In this book an effort has been made to integrate the physical and psychological aspects of health supervision. The committee has been particularly successful in the portion of the volume dealing with parent counseling, the reactions of mothers to questions from a doctor or nurse, worry and anxiety of mothers, and attitudes toward physical handicaps.

In discussing the physical examina-

tion there is brief mention of the eyes, a very crude test for vision in infants, and the need for noting strabismus; but there is no mention of the value of testing visual acuity and testing eye movements at the appropriate time. Two sample record forms for infants and preschool children are shown, one from the University of Pittsburgh and one from Johns Hopkins University. On one of the forms there is no mention of eyes or vision and on the other there is a listing for eyes only. When the manual is revised it is to be hoped that there will be at least a mention of the desirability of testing visual acuity starting at two-and-a-half to three years of age.

The Social Welfare Forum, 1954. Official Proceedings, 81st Annual Forum of the National Conference of Social Work. Columbia University Press, New York. 1954. 268 p. \$5.00 to non-members.

"Inventory and Opportunity" was the theme of this forum held in Atlantic City, N. J., May 9-14, 1954. The participants in the meetings and discussion groups were representatives of international and governmental organizations, lay and professional groups, industry and labor, universities, institutions, public and private agencies. Among the papers selected for publication in this volume of the official proceedings are two Eduard C. Lindeman Memorial Lectures: "Research Basis for Welfare Practice" by Robert C. Angell; and "How Cultural Factors Affect Family Life" by Paul Barrabee. "The Role of Government in Social Welfare" is discussed by Eveline M. Burns, Joseph S. Clark, Jr. and Nelson A. Rockefeller; "Social

Welfare—A World Concept" by Ralph J. Bunche.

Announced for later publication are three supplementary volumes of papers relating to casework; social group work and community organization; administration, supervision and consultation.

Save Your Sight. Elizabeth Ogg. Public Affairs Pamphlets (No. 215), 22 East 38th Street, New York 16. Published in cooperation with the National Society for the Prevention of Blindness. 1954. 25 cents.

This recent addition to the widely distributed series of Public Affairs Pamphlets summarizes information that everyone should have regarding the eyes and their care: how we see; common defects and diseases; signs of eye trouble in children; how to secure competent advice and treatment; prevention of accidents; good seeing conditions. The need for more nearly adequate support of eye research is pointed out, and ways in which each citizen can help in efforts to prevent blindness are emphasized.

Trainees Get Everything in Eyes
Even Irv Levine

Fort Dix, N. J., Jan. 7—Trainees at this Army post have not yet been struck in the eye with flying saucers, but if the present trend continues they well may be.

The post hospital lists "objects trainees have been struck in the eye with" as including:

Exploding boiled egg, top of fire hydrant, spinning top, ice pack, blade of propeller of toy airplane, corner of studio couch, tail of German shepherd dog, lunch pail, yellow paint, a chicken, and "Irving Levine," not otherwise identified.

—*New York Times*

ADJUSTABLE SUNGLASSES

Professional comment is invited on the following suggestion made recently by a correspondent:

To the Editor:

"It is quite true that you can have (sun) glasses specially ground to a doctor's prescription and I have done it. It is very unsatisfactory. In the first place, as it is sometimes done the glass is uniformly colored throughout and you get a graded effect from the thinner parts of the lens to the thicker parts which I should think anyone would find undesirable and disconcerting. Yet neither the opticians I have consulted nor the eye doctor who knew I was getting such glasses thought to tip me off about this, nor did it seem to bother them as being important. I am not even sure they were aware of the effect, which is of course more noticeable the thicker the lenses one wears. It is possible to get lenses made in a sort of sandwich with a barrier layer in the middle of uniform thickness but the man ordering the glasses needs to know of this possibility or he will get stuck with the other kind.

"In the second place, prescription ground sun glasses are a great nuisance because the normal thing to do when you go indoors or drive through a tunnel is to take off sun glasses, whereas the myope like me who takes them off can't see. Slip-on glasses are a fairly good answer but they don't give broad enough coverage to be really helpful on a beach. I have come to the conclusion that the real answer is to use one of these visor caps with a wide set of sun glasses hinged on to them. Then you can just flick the visor down or up as the occasion requires."

"*Disturbed*"

Point of View

In an essay on "Things I Am Thankful For" a little boy listed "My Glasses" and explained: "They keep the boys from fighting me and the girls from kissing me."

The Optician

The Sight-Saving Review